



FRIDAY, MARCH 14, 1879.

Apparatus for Testing Lubricants.

For the engravings and the following description of this machine, which was exhibited at the Paris Exhibition, we are indebted to *Engineering*:

The engravings annexed show an apparatus exhibited by the Paris, Lyons & Mediterranean Railway Company at Paris, and employed by them for testing the values of different lubricants. The apparatus, which was constructed at the Paris workshops of the company, consists of a pair of strong frames carrying bearings in which runs a shaft carrying a pair of wheels of which the rims are placed at the same distance apart as the lines of rail, namely 4 ft. 8½ in. Resting on these wheels is placed a pair of ordinary carriage wheels, mounted on their axle as shown, this axle being fitted with a pair of axle-boxes as it would be on a carriage, the upper part of the side frames of the machine serving the purpose of horn-plates. Resting on the axle-boxes are a pair of springs to the ends of which loads are applied by means of the arrangement of links and weighted levers shown clearly in fig 1, the weights on the levers being varied as required. A screw is also coupled to the centre of each spring, the nuts of these screws forming worm-wheels and being connected by a cross-shaft carrying two worms as shown. By turning this cross-shaft the two axle-boxes can be simultaneously relieved of the pressure of the springs, the object being to facilitate the starting of the apparatus, as we shall explain presently.

The lower shaft carrying the friction wheels, on which the upper or running wheels rest, is furnished with a wide belt pulley, and it also has at its centre a worm which imparts motion to an ordinary governor as shown, this governor making one revolution for each ten revolutions of the lower shaft. The governor actuates a pointer which indi-

the force of the collision buckled it up at the centre, which was the weak way, the heavy truss rods underneath offering no resistance whatever; therefore we decided to place the material where it would do the most good, i. e., in the sills. The most profitable car for railroads need not necessarily be of iron, but one which requires the least motive power in proportion to the freight hauled, and the least repairs in proportion to the miles run, or, in other words, one combining lightness, strength, durability and cheapness of first cost, without regard to what it is made of; but until a more suitable material is known we will show that iron fills the requirements if properly used.

A flat car of our design weighs 8 tons, and will transport 20 tons as readily as the present wooden cars will 12½ tons. This certainly fills the first requirements—lightness and strength. As to durability, we have for the past ten years been engaged in building iron bridges and similar structures, and think we are competent to judge of the requirements, and if in a collision or derailment were the forces to be resisted known, it would be but a simple matter to provide against them. But as they are unknown, we must be guided by such iron cars as have been in use heretofore. Twenty years since, the New York Central & Hudson River Railroad placed on their line 500 iron box cars, and to-day they may be found at all points on the main line, and excepting the box, which was too light originally (½ of an inch), they are in perfect condition to-day; we refer to the body only, the trucks under them being of wood and iron. From the fact that they were of iron, they have been subjected to much heavier loads than an ordinary car, we having seen them with 15 tons load, and as these car bodies have for 20 years withstood the wear and tear, is it not fair to presume that our frames, with one-third more iron, will last as long? It is evident that there are cases where an iron car will be disabled beyond repair, but put a wooden

same motive power will haul, in addition to the 28½ (iron, empty) cars, 20 iron loaded cars, containing 400 tons of paying freight and 400 tons of non-paying freight.

In addition to the 36 empty wooden cars, this power will haul 11 loaded wooden cars containing 132 tons of paying freight and 668 tons of non-paying freight. That is, place two engines on the same track, and in one trip and return, bringing the loaded cars back empty, and as many more loaded as they can haul, the one composed of iron cars will have transported 970 tons of paying freight and 630 tons of dead weight, and the wooden cars 598 tons of paying freight and 1,017 tons of dead weight, a difference of 377 tons of paying freight and 377 tons of dead weight.

RELATIVE FIRST COST.

Let us assume a case of a road wishing to increase its carrying capacity 3,000 tons. This would require
240 wooden 12½-ton cars, at \$450 each, or..... \$108,000
150 iron 20-ton cars, at \$550 each, or..... 82,500
A difference in favor of iron of 25 per cent., or..... 25,500
These 240 wooden cars will weigh, empty..... 2,052 tons.
And 150 iron cars will weigh, empty..... 1,200 "

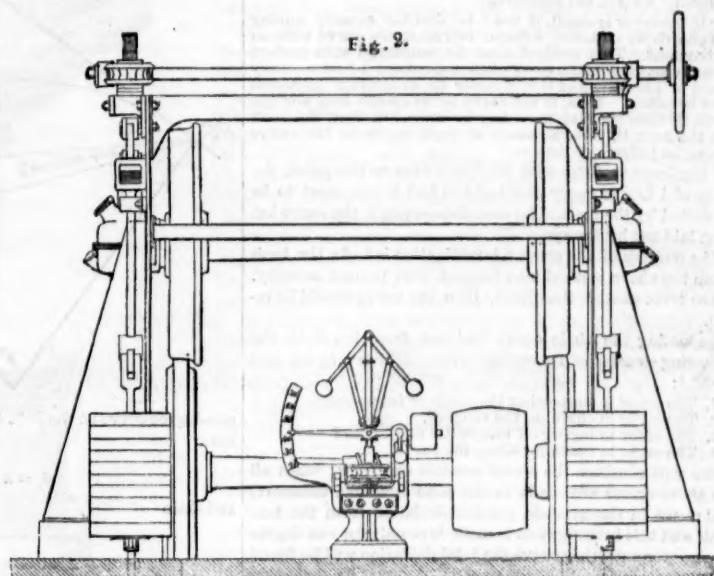
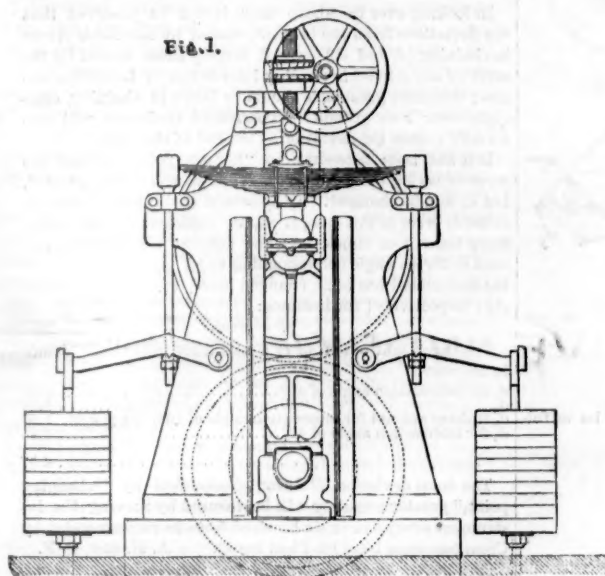
Therefore this road will, in hauling 3,000 tons of paying freight, save by using iron cars the power required to haul 852 tons, equivalent to one train.

There being certain portions of all cars that will wear, such as brasses, wheels and draw-bars, the proportion required for each lot of

	240 wooden cars.	150 iron cars.	A saving of.
Draw-heads.....	480	300	180
Brasses.....	1,200	750	450
Wheels.....	1,920	1,200	720

These 240 wooden cars will require 7 engines and trains with crews, and 150 iron cars will require 6 engines and trains with crews, also a train of 36 wooden cars will require more men to handle, more room in yards, freight houses and switches than a train of 29 iron cars.

So it would seem that at every point there is a large saving in the use of light and strong cars over heavy, weak cars.



APPARATUS FOR TESTING LUBRICANTS:

Paris, Lyons & Mediterranean Railroad.

cates approximately on a scale the surface speed of the rims of the wheels in kilometers per hour. The friction wheels on the lower shaft, we should mention, are mounted eccentrically to the extent of 2½ millimeters (¼ in.) so as to impart a slight vertical oscillation to the upper wheels when running, and thus intimate to some extent the jolting of a carriage on the rails.

The mode of operating is as follows: The axle-boxes having been charged with the lubricant to be tested, the springs are raised by means of the arrangement of screws and worm-wheels already described, so that the axles of the upper shaft are left free from load. Under these circumstances the lower shaft can be started without throwing an undue strain on the belt, and when the whole is fairly running the springs are gradually eased down so as to impose the desired pressure on the axle-boxes. In determining the relative value of different lubricants, that is considered to be the best which permits of the highest load upon the bearings and the highest speed without heating. This mode of testing does not permit of an accurate measurement of the fractional resistances with the different lubricants, but it affords a good mode of estimating their practical value, the avoidance of hot bearings being rightly considered a matter of great importance in railway working.

Contributions.

The Advantages of Iron Cars.

TO THE EDITOR OF THE RAILROAD GAZETTE:

Inclosed we send illustrations of an iron car complete, and body and trucks on an enlarged scale. These contain all required sizes and dimensions, and will enable you to judge of the merits as well as strength and durability of the car. By a comparison between these and the cuts published in the *Railroad Gazette* of Jan. 24, you will observe that a slight alteration has been made in the trucks, enabling us to use longer and easier-riding springs. The body, however, is entirely different. The truss rods under sills are omitted, and in their stead are two additional sills, making six in all. These sills are 7½ in. deep, in place of 6 in. where trussing was intended. We were led to abandon these by an occurrence which was brought to our attention recently. In a collision near this city between two freight trains, among others was a flat car just out of the shops. This car being empty,

car in such a position and it would be reduced to fragments: so on one hand the owners would have a lot of wood not worth gathering, and on the other a lot of iron worth one-fifth the original cost as scrap. Again, assuming it to be free from wear and tear, if kept well painted, what is the limit to its life? There is no timber or rubber in it (floor excepted) to rot. The springs under swing-beam are steel, tested and warranted to us for five years: the construction of the truck will not admit of their being loaded beyond a certain limit, and should one or all of the hangers or springs break nothing drops on the track. (See remarks of Mr. Kirby, of the Lake Shore & Michigan Southern Railway, in the *Railroad Gazette* of Feb. 28.) We believe there is no other swing motion truck made that in case of one or more hangers breaking will not drop the sand-plank and springs on the track, to throw the trucks following off the track.

Again, it is conceded by many railroad men, and it must be evident to all, that with a car where a large portion of the weight is carried by the side bearings, in turning curves a great force is created by the friction between the side bearings, which, if it exceeds the resistance of the wheels to mounting the rails, will cause the train to leave the track. We have had occasion to examine cars in great numbers, and as yet have failed to find one where the side bearings were free. With our car the entire weight is carried by the centre-plates, and under no condition is it transferred to the side bearings. As to the profit arising from their use, let us assume an example:

We have in our yards a number of Pennsylvania Railroad cars, the average weight after deducting for sides being 17,100 lbs. One first-class locomotive will haul on a level 800 tons. This 800 tons is equivalent to a train of 36 wooden cars containing 461 tons of paying freight and 339 tons of non-paying freight or dead weight.

This 800 tons, if in 8-ton cars loaded with 20 tons each, would require a train of 28½ cars containing 570 tons of paying freight and 230 tons of non-paying freight. A difference in favor of the iron cars for one was of 109 tons.

On the return trip, supposing these cars to be empty, this

We had hoped to place these cars at \$500 each, but we find, with the improvements attached, we cannot sell them for less than \$550, and will furnish a lot at that price, which includes brakes on both trucks. We have written at some length, but think the subject one that will admit of a large discussion.

KELLOGG & SEAVER.

[What seems to be the most essential points stated in the above article are the relative weights, capacity and cost of wooden and iron cars, which are given as follows:

	Weight.	Capacity.	Cost.
	Tons.	Tons.	
Pennsylvania Railroad wooden cars.....	9.41	12.8	\$450
Iron cars.....	8	20	550

It will be seen from these figures that the proportion of dead weight to the carrying capacity is as 1 to 1.36 with the wooden cars and 1 to 2.5 with the iron cars. If in practice the latter proportion can be maintained, it will undoubtedly be a great advantage in favor of iron cars.—EDITOR RAILROAD GAZETTE.]

Atmospheric Pressure for Elevators.

TO THE EDITOR OF THE RAILROAD GAZETTE:

Some time ago, having occasion to repair a break in a blast-pipe leading from a fan blower to a row of blacksmith forges, a temporary patch was applied in a hasty and rather careless manner, so that a small opening was left under the patch slanting into the pipe in the direction of the air current passing through it.

When the blower was started, instead of a leakage or discharge of air from the hole, more air was taken in and a current created which would take in coal dust, sand, dirt and ashes, and discharge them with considerable force at the end of the pipe. About the same time I was trying to operate an iron bucket elevator to carry sand from the drying-room to bins in a loft above, but had found it a very difficult thing to keep in repair or make do the work in a satisfactory manner. The leak in the blower pipe suggested the idea of working an elevator by atmospheric pressure, and my experiment proved entirely successful, not only in carrying sand, but it demonstrated the possibility of applying the same pro-

cess for elevating grain or other dry, granulated material to any extent that might be desired.

I first fitted up a 28-in. fan blower to run at a moderate speed (about 800) with such pipe and hose connections as were needed. The only difficulty experienced was in devising the right kind of a receiving-box or orifice to admit the proper quantity of material to be elevated so as to suit the strength of blast and capacity of the air current; with this properly adjusted the whole outfit worked well. My first experiment was with a barrel of beans, which were taken up and discharged with considerable force into the top of a building 38 ft. above the receiving-box. Corn and smaller grains I found no difficulty in "blowing up" *ad libitum*.

This apparatus has for some time been in successful operation, with a very trifling expense for power or care. It requires no attendance, and has been used to elevate more than 12,000 tons of sand from the drying-room floor to bins 20 to 30 ft. above and at a considerable distance obliquely. The current of sand is not only thrown into these bins freely, but thrown upon the roof above with such force as to soon wear it through unless protected with iron shield-plates for it to strike against.

From these experiments and later investigation of the subject, I am satisfied that atmospheric pressure can be used to good advantage for elevating grain and other similar work, and with a great saving of labor and machinery as compared with present methods.

MECHANIC.

How Near Should the End of a Railway Curve Join the Tangent?

TO THE EDITOR OF THE RAILROAD GAZETTE:

In Trautwine's "Field Practice of Laying-out Circular Curves," seventh edition, page 20, Article IX: "How to proceed when the end of a curve does not correctly join the tangent," we find the following:

"If the error is small, it may be divided equally among the chords by measure, without retracing the curve with an instrument. This method may be employed with perfect security so long as the error does not exceed 1 foot to every chord of 100 feet; and it will never be so great if moderate care be taken. Thus, if the curve be 20 chords long and the error 20 feet, the last stake may be moved 20 feet, the next 19, the next 18, etc., as nearly at right angles to the curve as can be judged by the eye."

I beg leave to differ with Mr. Trautwine on this point. An error of 1 foot to every chord of 100 feet is too great to be corrected by the method he describes—even if the curve has been laid out by the eye.

The purpose of the present investigation is to fix the limit when the above method may be used with perfect security. If the error exceeds that limit, then the curve should be re-run.

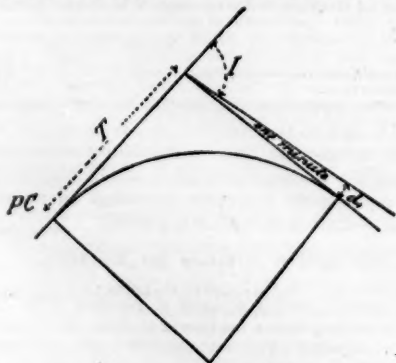
Supposing the whole curve laid out from the P. C., the following sources of inevitable errors will have to be considered:

1. The error in measuring the angle of intersection.
2. The error in chaining the tangent.
3. The error in laying off tangential angles, and
4. The error in chaining along the curve.

We will consider the worst possible case, i. e., when all the above errors are made in the same direction, therefore, will result in the greatest possible deviation from the tangent, and this investigation is made here only for one degree curves—for any other curve the total deviation will be found approximately by dividing amount of error by deflection angle (degree of curve).*

I. The error in measuring the angle of intersection.—We will suppose that the angle of intersection had been read one minute more than it actually amounts to. (A transit used for locating a railway line should work accurately enough so as not to exceed one minute as inevitable error in measuring angles.)

The result will be that the tangent (T) will be laid off too long, and the difference will be the greater the larger the intersection angle is. Now, supposing the tangent to be chained correctly (according to the measurement of the angle of intersection) and the curve to be staked out correctly,

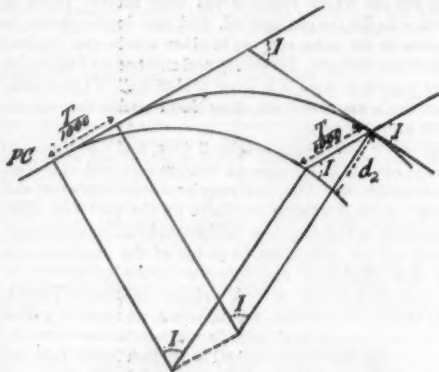


how much will the deviation be at the end of a one-degree curve, owing solely to the above error of one minute in the measurement of the angle of intersection? If we call that deviation d_1 (see the annexed diagram) its value will be expressed by the following formula:

*I will mention here that the two most celebrated authors on railway curves differ as to the meaning of the word "deflection angle." Henck says in his "Field Book for Railroad Engineers," page 4: "The deflection angle of a curve is the acute angle formed at any point between a tangent and a chord of 100 feet. The deflection angle is therefore half the degree of the curve." In Trautwine's "Field Practice," etc., we find, page 6: "These exterior angles, included between any chord and the extension of the preceding chord, are called deflection angles, or angles of deflection, or angles of curvature." In Trautwine's book I cannot find any definition of the degree of a curve, though he speaks frequently of curves of different degrees.

A. H.

$d_1 = \tan 20' \times T = 0.00029 T$
II. The error in chaining the tangent T.—In chaining T, an error of $\frac{T}{1,000}$ would be admissible. Supposing T was laid

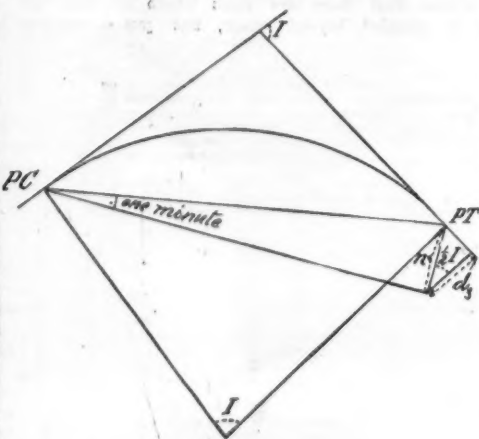


off too long, then the deviation from the tangent at the end of a one-degree curve (see annexed diagram) would be

$$d_2 = \frac{T}{1,000} \times \sin I.$$

In this formula the intersection angle is called I.

III. The error in laying off tangential angles.—Supposing the total tangential angle to be laid off too large—say one minute more than it should be—then the deviation d_3 for a



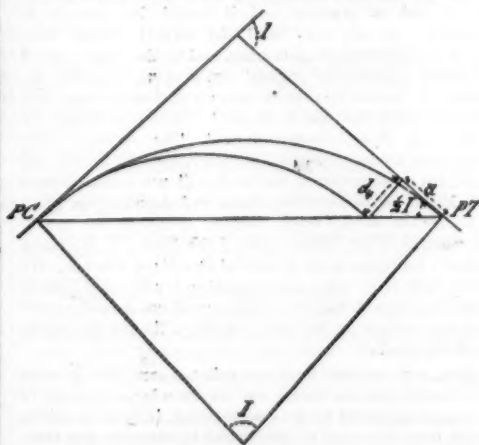
one-degree curve at the P. T. (see diagram) would be as follows:

$$d_3 = n \times \cos \frac{I}{2}$$

and since

$$\begin{aligned} 100, \sin \frac{I}{2} \\ n = 0.00029 \frac{\sin 0^\circ 30'}{\sin 0^\circ 30'} \\ d_3 = 3.3 \times \sin \frac{I}{2} \times \cos \frac{I}{2} \end{aligned}$$

IV. The error in chaining along the curve.—The chaining



supposed to be $\frac{T}{1000}$ too short (see diagram). For a one-degree curve we have:

$$d_4 = a \times \tan \frac{I}{2}$$

$$a = \frac{T}{10} \text{ feet.}$$

$$\begin{aligned} I \text{ feet} \times \tan \frac{I}{2} \\ d_4 = \frac{I}{10} \end{aligned}$$

The following table shows the deviations d_1 , d_2 , d_3 and d_4 for one-degree curves of intersection angles from 5° to 120°.

+The different values of T will be found correctly in Trautwine's table of actual tangents, page 14 of "Field Practice." In Cross's Field Book (New York: Stephen Hallet, printer, No. 122 Nassau street, 1855), the following errata in his table of actual tangents should be corrected:
Page 18—11° 58' for 890.53 read 800.53.
" 19—12° 42' " 537.68 " 637.68.
" 23—51° 51' " 2,747.51 " 2,847.51.
" 27—89° 53' " 6,718.38 " 5,718.38.

A. H.

calculated by the preceding formulae; it also shows the total deviation

$$D = d_1 + d_2 + d_3 + d_4,$$

which may be considered as the extreme limit of deviation for a one-degree curve, to be corrected by dividing D equally among the chords.

INTERSECTION ANGLES.
Degrees.

	5	10	15	20	25	30	35	40
	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.
d_1	0.07	0.15	0.22	0.29	0.37	0.45	0.53	0.61
d_2	0.02	0.09	0.20	0.35	0.54	0.77	1.04	1.35
d_3	0.15	0.29	0.43	0.56	0.69	0.82	0.95	1.06
d_4	0.02	0.09	0.20	0.35	0.55	0.80	1.10	1.45
D.....	0.26	0.62	1.05	1.55	2.15	2.84	3.62	4.47

	45	50	55	60	65	70	75	80
	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.
d_1	0.60	0.78	0.87	0.96	1.06	1.16	1.27	1.39
d_2	1.06	2.05	2.45	2.87	3.31	3.77	4.25	4.73
d_3	1.17	1.26	1.35	1.43	1.50	1.55	1.59	1.62
d_4	1.86	2.33	2.86	3.46	4.14	4.90	5.75	6.71
D.....	5.40	6.42	7.53	8.72	10.01	11.38	12.86	14.45

	85	90	95	100	105	110	115	120
	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.
d_1	1.52	1.66	1.81	1.98	2.17	2.38	2.61	2.88
d_2	5.23	5.73	6.23	6.73	7.22	7.70	8.16	8.60
d_3	1.64	1.65	1.64	1.62	1.59	1.55	1.50	1.43
d_4	7.79	9.00	10.36	11.91	13.67	15.70	18.04	20.78
D.....	16.18	18.04	20.04	22.24	24.65	27.33	30.31	33.60

In looking over the above table it will be observed that the deviations from the tangent, caused by inevitable errors in chaining (d_2 and d_4) exceed largely those caused by the error of one minute in reading intersection or tangential angles; therefore great care should be taken in chaining, especially over hilly ground. Experienced chainmen will materially reduce the deviation at the end of the curve.

If it has been necessary to "change point" during the work of laying out a curve, d_1 , d_2 and d_4 will not be affected, but d_3 will be changed. To ascertain the extent of the inevitable error in this case, it will be sufficient to take twice, three times, four times, etc., the amount contained in column d_3 for an angle corresponding to $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, etc., of I, if the instrument has been changed once, twice, three times, etc., respectively; for instance:

I = 40 degrees.

The curve laid out from P C and three additional points in the curve:

d_1 for intersection angle of 40°.....	0.61
d_2	1.35
d_3 (4 times amount for intersection angle of 10°) = 4×0.20	1.16
d_4 for intersection angle of 40°.....	1.45

$$D = d_1 + d_2 + d_3 + d_4 = 4.57$$

The total deviation D being diminished by "changing point," greater accuracy will be insured by moving the instrument every five or six hundred feet—as recommended by Cross (see page 10 of his Field Book). A. HARDT, C. E.

Good Mechanics.

FORT WAYNE, Ind., March 5, 1879.

TO THE EDITOR OF THE RAILROAD GAZETTE:

I am glad to see by your journal that "the training of mechanics" is attracting your attention. As many hundreds of capable machinists' apprentices will have to make their living as journeymen, it is very desirable that they should learn their trades in a thorough manner, and become accomplished workmen and be able to earn wages in time that will enable them to live, and feed, cloth and educate their children. There is no mistake that boys who begin young, and are kept as much as possible at hand-work, get the use of the tools in a way that never leaves them in after life. A good fitter that has been thoroughly practiced in his teens will file hollow on a narrow surface and acquire a dexterity with a hammer and chisel that he will never lose. The same will apply to a turner. If a boy begins in a wretched makeshift, dull-tool clawing, prick-punch centering, hashing, work-in-a-hurry, file-rasping style, he will never make a first-rater. On the other hand, if he watches an experienced old stager and takes a pride in finishing his work so that nobody can make it better, and keeps his tools sharp and properly shaped until they are worn out, a foreman will encourage him by giving him better and more particular jobs, and as he gains confidence in his abilities, will finally intrust him with the best jobs in the shop. An apprentice ought to be encouraged to make callipers, straight-edges, squares, surface gauges, etc. When a boy is presented with tools he cares little about them and will part with them easily. In Scotland apprentices serve five years, and in England seven. There turners, fitters and erectors serve a regular time.

Hand work is better paid than the self-acting machine work. In fact, planing machines and slotting machines are generally tended by promoted laborers, as are upright drills. It is perhaps better for an apprentice to have a little experience in running a planing machine, as there is plenty of very accurate work to be done on it. But if a boy flutters about from one thing to another too much he becomes a kind of general Jack of all trades and master of none. Give him a stub end to fit up and make the key and brasses a dead fit, or a difficult cylinder to patch, and he will be utterly helpless. This, of course, does not apply to a youth being educated for a foreman or master mechanic. First-class work will always

be appreciated in the long run. A locomotive builder that can make an engine to run three years and do good service, will certainly beat one that becomes a scrap-heap in one year.

Some of the private contract shops that are in business solely to make money are getting beat all to pieces by the railroad companies who are making first-class engines, that are made to wear. Apprentices without influence or wealthy connections cannot all become foremen. There are many first-rate, experienced workmen that have worked a lifetime in some of the best shops in the world that will never be anything but journeymen, and as first-class work requires time and care, it is the interest of an apprentice to aim at perfection. It is an old Scotch proverb that "the more hurry the less speed."

Making every move tell—order and system is the thing. The dancing Dick that runs about with his head down like a bull at a gate seldom accomplishes much. However, there are different opinions about this. A master mechanic once remarked of a new man, "That's a d—d good man; he moves about on his legs very lively."

I am afraid your remarks about the present generation in machine shops being unable to start a true thread with a chaser are too true. A man that has been a good chaser never loses the art of starting a thread, and it occasionally comes in useful where the gear will not cut an odd thread. Handles, knobs, balls, bulges and hollows soon tell how a man has been trained. Drawing educates the eye, and every apprentice is benefited by learning it. Anything that is worth doing is worth doing well. A good molder or forger would be disgusted to see the shape of his work spoiled by a file-rasping hash of a lathe-man making a mess of it.

VETERAN.

The Boston & Albany Engine.

TO THE EDITOR OF THE RAILROAD GAZETTE:

I have read "Springfield's" communication in your issue of the 14th; also those of a former date. There are some things claimed in the construction of these engines that I do not fully understand. "Springfield" would confer a favor not only on the writer but other railroad men if he would explain why the throttle in the smoke-box is claimed as an advantage. It is singular the advantage is unknown to so many who are taking them out and replacing with balance-throttle because they are expensive to fit up, costly to keep in repair and hard to handle. The throttle in smoke-box is claimed to be an advantage because it "is close as possible to the cylinders, thus allowing steam to accumulate in the pipes and chest to a high pressure during the interval both valves are closed." It would be interesting to know what this means. It looks as though it was intended to carry the idea that the steam-pipes become a reservoir for a time, and the steam is superheated by heat in the smoke-box. If this is so, why would not the result be the same if the throttle-valve was in the back end of the boiler or anywhere else? Will "Springfield" throw some light on this, and tell us what pressure he has in steam-pipes; whether it is greater or less than boiler pressure? If greater, how much? This would be worth knowing, as the indicator on the ordinary locomotive always shows a decrease in boiler pressure after the steam leaves the boiler.

Great advantage is claimed for the perforated dry-pipe. These pipes were used on locomotives by Rogers, by Danforth & Cooke, and by some of the Boston shops about 25 years ago. It is doubtful if any are now put in except by the Boston & Albany. On roads where the water was bad, the sediment closed the perforations. These pipes were taken out, and solid pipes with throttle put in dome. No perceptible difference in the working of the engine was found by the change.

"The cylinders are fastened with steel bolts to the frame." This, I should think, would be very necessary with an 18 $\frac{1}{2}$ -in. cylinder where to "compensate for possible inequality of expansion between boiler and frame, the boiler can advance or recede $\frac{1}{8}$ of an inch in smoke-box." The writer has a very lively recollection of just such an arrangement on four engines, and knows what the result of "advancing and receding $\frac{1}{8}$ of an inch" cost the company. We come now to the short ports. These have been a study, to ascertain where the advantage is; why a short should do better work than a long port. When the friends of the short port are asked to explain where the gain is, about the only information to be had is: "It is because it is," which is about as intelligent an answer as could be expected from advocates of a port with an area of 10 square inches to supply steam to a cylinder with an area of 276.11 square inches. The work that is got out of engines with short ports is done by increased boiler pressure. That there is an economy in fuel I doubt very much. The sizes given for boilers, if correct, are not those that would make a "free steamer" for an 18 $\frac{1}{2}$ -in. cylinder. It looks as though it would have been better to have made the fire-box longer and get additional adhesion in that way rather than put on escape pipes (common), weighing 1,900 lbs., and foot boards, 3,885 lbs., to get adhesion. It might, perhaps, have been better to have put in another pair of drivers, and utilize more of the weight.

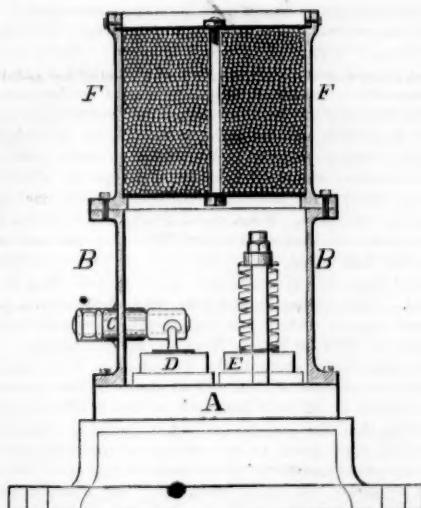
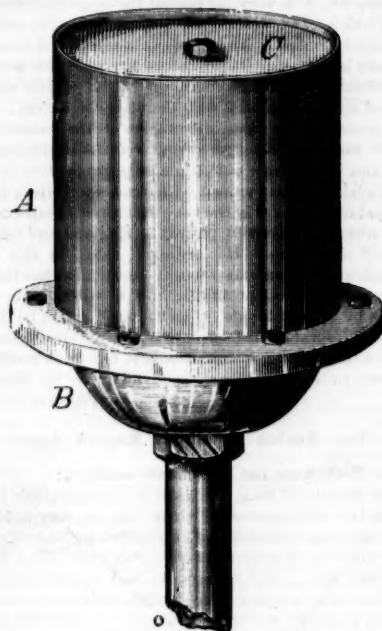
The trials mentioned between the Mogul "Brown" and "Virginia," were simply no trials at all. There appears to have been no weight taken of the train, mention only being made of so many cars hauled, some of them empty. Any person acquainted with the difference in weight of cars and the loads that are in them will understand the value of such tests. The "Brown" weighed on her drivers 55,200 lbs.; diameter of drivers, 4 ft. 6 in. The "Virginia" weighed on drivers 43,000 lbs., and had 5 ft. wheels. The cylinders were the same, 18 x 26 in. The "Brown's" valves had $\frac{3}{4}$ in. outside and $\frac{1}{8}$ in. inside lap. The Virginia's valves were

$\frac{3}{4}$ in. outside lap and cut out $\frac{1}{8}$ in. lead on each end inside; $\frac{1}{8}$ inside lap is excessive and was an injury to the "Brown," but taking these figures, the "Brown," unless a very bad "Brown" indeed, should have done better work than the "Virginia," and nothing short of another trial under different conditions will satisfy people interested but what the engines did. Men may make "laws unto themselves" as much as they please, but there are natural laws which must be respected and cannot be put aside. M. M.

Beck's Quieting Chamber.

TO THE EDITOR OF THE RAILROAD GAZETTE:

Beck's "quieting chamber" was patented Aug. 27, 1878, and, as its name denotes, is used for stilling or quieting the terrible "roar" of escaping steam from safety or "pop" valves, open steam pipes, vacuum brakes, etc., etc. The means by which this quieting effect is brought about consists in leading either the "live" or "exhaust" steam in its escape through a metal chamber of moderate dimensions, which is filled with small glass balls or beads, say $\frac{1}{4}$ to $\frac{1}{8}$



BECK'S QUIETING CHAMBER AND NOZZLE.

For the silent discharge of steam under pressure.

in. in diameter. These balls are confined to their places in the chambers by copper gratings at top and bottom, and the steam in passing through the tortuous interstices thus created between these glass or metal balls, is entirely deprived of its roaring and puffing qualities, but escapes freely with little or no back pressure to where it is to be discharged. Many tests have been made with this device by railroads, steamship owners and builders and others, and it is reported to quiet the noise perfectly and to cause no appreciable back pressure.

For use on locomotives (on safety and pop-valves), it will eventually be useful if the laws begin to regard accidents caused by the screeching of escaping steam—the fruitful source of runaways. It is said that by proper attention to area of the chamber, the quieting effect can be made so perfect that when standing close to the escape-pipe even a whisper can be heard.

It is being used by the English Admiralty, after a trial of nine months, quite extensively.

Various railroads here are testing it, and some have adopted it. It is manufactured by Philip S. Justice, of No. 14 North Fifth street, Philadelphia.

The Train Weights on the New York Central.

TO THE EDITOR OF THE RAILROAD GAZETTE:

An editorial at the close of the article, "Iron Cars—Are They More Economical than Wooden Ones?" questions the

accuracy of the figures given by me for train-weights exclusive of freight.

These figures, as stated in the article, were taken from the State Engineer's reports, which must be easily accessible to the editor of the Gazette. Hence the accuracy of my statement is easily verified and beyond question.

The figures, as given by the road, are probably not mathematically correct, yet there is a wide difference between figures approximately, and therefore practically, correct, and figures merely guessed at.

And so long as the figures were even only approximately correct, the inferences and deductions drawn from them would not have been altered, even if, instead of being "such beautifully round numbers," the train-weights had been stated in tons, pounds and ounces.

ALBERT F. HILL, C. E.

The Development of Passenger Traffic.

TO THE EDITOR OF THE RAILROAD GAZETTE:

It is a matter of very great importance to the railroad world and to the community at large that all possible means of developing travel should be brought forward and thoroughly discussed. The discussion of such a question is, in many respects, more profitable than that much-vaunted one of competitive through travel and the incidents of scalping attaching thereto. There is more in it for all concerned. Referring to your very able editorial a few days since, the classification system, so ably and fully discussed therein, would to a great extent place the conduct of passenger travel, in so far as its practical operation is concerned, on a very different footing to that at present in vogue. If the social conditions of this country would permit of its application, no doubt it opens up a very wide field for progressive action, and would tend to draw out from those sections of the country affected by it a fuller patronage of the railroad as a means of constant intercommunication—thereby benefiting all concerned. There are, however, some very important considerations attaching to this means of developing travel in America. First of all our circumstances are somewhat different in two important respects from those upon which the solution of such a question in England would depend, and secondly the subject for that point of view has been tested pretty thoroughly not very long since in the enlightened discussions of the Massachusetts Commission (1872).

The circumstances referred to are the difference between the social conditions of the population respectively in England and America, and also that in the character of passenger transportation as conducted in the two countries.

As regards the first, it is the nature of the peculiar social demands of this country which have dictated our present system of tariff construction and which occasions the difference between it and that of other countries. The same may be said with equal truth and in illustration of the fact of any and all the various systems of railroad management the world over. They necessarily partake of the character of their respective national forms of government, which again are due to social influences for that character. England is peculiarly a country of class. Society bears the stamp of history, and the history of the country has been productive by its very character of wide distinctions between class and class.

Great changes have no doubt occurred in England compatible with the rise and progress of free institutions and the tendency to fuse more closely together that which is called nobility (which Macaulay designates as "ancient wealth") with the wealthy middle class is a growing one—proof of which we have in the advance made not long since by the Midland Railway of England in a re-classification of its passenger business more in accordance with the social elements around them.

Have we in America, is the practical question, social elements of the same character calling for a reconstruction of our passenger tariff system to accommodate them?

Exceptionally, as in the Southern States, we may have, but generally, to the same extent as in England, we hardly can be said to have such. If we should find them any where, in the more advanced and populous parts of the Union, it would be in the state of Massachusetts.

Now, in the third annual report of the Railroad Commissioners of that state, where the question of tariff regulation is most ably discussed by men of marked commercial ability, the following remarks are made: Discussing the incompatibility of the construction of tariff by legislation with the requirements of modern travel, the commissioners found as follows, that, "There is in England a vast population which is very poor, and which cannot afford in traveling to pay for a great rate of speed, or for the best class of accommodation. The law (calling for parliamentary trains, so called, because run in accordance with act of Parliament) was simply intended to compel companies to provide certain slow and cheaper trains, at a low rate of fare for the poorer class of the community. This, the law accomplished, and this a similar law would accomplish in Massachusetts did a like exigency exist. In Massachusetts, however, there is yet no such well-defined separation of the traveling community into various classes."

There is another point to consider, namely, the difference between methods of conducting passenger travel in England and America.

The class distinctions in England have dictated peculiar forms of coaches or cars. An English train is composed of smaller coaches and is in consequence more easily capable of adjustment in its composition to the wants of society in England. In America this classification would be a very much more difficult matter, on account of our admirable truck or bogie system and our, in consequence, large and

comparatively unclassified cars. The weight of a Pullman car and the 30,000 lbs. of ordinary first and second-class cars will have very little scope (unless the latter is capable of subdivision into classes) for the adoption of general class distinctions in which prices are proportionate to class of accommodation. As it is, the necessity of adding a large and weighty car to a full train for a small surplus of passengers is a constant cause of regret by our superintendents of train service, and this, unless the cars were divided up and other present special advantages seriously diminished thereby, would be constantly recurring.

There is another point, too, which also bears materially on this question, namely, the relative price of passenger transport in England and America, taking it, of course, as a very salient feature in favor of classification as in effect in England, that the scale of charges is such as to cover a larger social representation and draw out a larger measure of travel in consequence, especially third-class.

Now, is there any greater attraction to travel in England in the matter of fares than in America, is a question which a comparison between respective fares will decide:

In England (in United States currency) the ordinary single fares are, first-class.....	67¢
Second-class.....	42¢
Third-class.....	33¢

In America the following will, I think, be found correct:

Erie R. R.	Cts.
Through tariff, first class.....	1.49
Way.....	2.02
Emigrant through.....	1.71
L. S. & M. S. R. R.	Cts.
Through tariff, first class.....	2.13
Way.....	2.37
Emigrant through.....	1.90
N. Y. C. & H. R. R.	Cts.
Through tariff, first class.....	1.87
Way.....	2.00 to 2.25
Emigrant through.....	1.12
Penna. R. R.	Cts.
Through tariff, first class.....	2.50
Way.....	3.00
Emigrant through.....	1.60

Or even if the average rate of three cents per mile first class and 2 cents per mile second class of American lines is taken, it will be seen that the inducements as far as prices go as affecting this question are decidedly in favor of America.

Of course Pullman charges make as it were a double first-class, and even then with the Pullman and the 3-cents-a-mile average rate we are below the English system and in a better position than the Midland Railway of England, where first and third-class are the two main classes of travel.

Thus socially, physically (as regards operation of traffic) and economically (as regards fares) we are in America today not very far away in our system on a general view of the subject from the English lines—except that more is given for less money to the great body of the traveling community, if we put our first-class against the English third-class.

Before concluding these somewhat lengthy remarks, which I trust you will pardon on account of the importance of this subject to railway-men, allow me to quote further from the Massachusetts report referred to as bearing upon that method of traffic development advanced in my recent paper in your columns by means of a perfectly proportionate tariff of rates to meet all grades of travel from the constant to the very occasional. When referring to the law in force on the New York Central by which the 2-cents-per-mile rule is created, the report says:

"The familiar law in force on the New York Central is, however, of a different character, and applies to all trains, descriptions of travel and rates of speed. No package, commutation or season ticket is sold at any reduced rate, and consequently the man who travels every day and by accommodation train pays exactly the same rate (2 cents) per mile, as he who travels once a year by express. When a similar law, applying to all roads in the Commonwealth paying more than eight per cent. dividends per annum, was proposed in the Legislature of 1871, the discussion upon it elicited such unexpected results from the operation of such a law, that the measure was rejected. For instance, though the bill was limited in its operations to roads paying annual dividends of eight per cent. and upward, the effect of competition made it apply to other roads which either paid less dividends, or, in some cases, had never paid any dividend at all, practically threatening such roads with bankruptcy. Again, there is not a considerable business centre in the Commonwealth which is not surrounded by towns in which people have settled, built houses, and effected every arrangement for residence, relying upon a regular and very cheap access, by rail, to their places of daily business. A law which substituted a uniform rate of two cents a mile for the commutation rates at which such persons travel would necessitate an entire change in their modes of life. Such a system might work well where a community has grown up under it. If, however, suddenly, by an act of its legislature introduced into a community which has established itself under the discriminating tariffs always hitherto in use in Massachusetts, the Commissioners do not see how it could fail to produce most disastrous results. How serious as regards regular season-ticket passengers such a change would be may be inferred from an examination of the tables accompanying the answers of the corporations to the Commissioners' circular of August 10 [too long to insert here]. From these it will be seen that those who travel most on the roads of this state, instead of paying two cents per mile, as is proposed, now pay but from 1/2 cent to 1 1/2 cents per mile.

"The rule of uniform mileage rate is also wholly opposed to the fundamental principle of taxation, that the burden should in all cases be so imposed as to rest most heavily where it will be least felt. The man who travels every day over a given route has a right, on every principle of economy, to buy his passage at wholesale rates, and to him a concession is a matter of great moment; whereas it is of comparatively little consequence what he pays, within reasonable limits, to the man who travels very rarely. A law, therefore, which imposes an additional cent per mile on the daily traveler, to give it to the occasional one, does not seem to place the burden of taxation where it is least felt. The Commissioners do not wish to express a decided opinion on a point which they

* These figures are too high, we are sure.—Editor.

† The figures for New York roads are as given in the state report for one year, but usually the average through rate is not so low.—Editor.

‡ Most American lines have no second-class rates, at least for local traffic.—Editor.

have had no opportunity thoroughly to investigate, but they are, nevertheless, inclined to believe that the system of discriminating rates now generally in use on the Massachusetts roads is not only more profitable to the corporations than the uniform-price-per-mile system of the New York roads, but it at the same time is more advantageous to the traveling community through its practical adjustment of the burden.

The principle reason, it appears to the writer from practical observations and professional experience both in England and America, for such a through tariff system as his paper set forth not being at present in use, is that the conduct of passenger traffic in its local aspect has not been thoroughly studied, and in America has been much neglected, owing to the struggle for competitive through business, which has monopolized all the attention which so important a matter should have received.

In England, class for class, this very matter of an inflexible tariff system is a cause of standing grievances between the railway and the constant traveler. System for system, that of the passenger is miles behind the postal, and equally so if we view the railway in a commercial light as a manufacture of transport, it is very far behind the large manufacturing houses which exist to serve the community with necessities of frequent demand. And for this reason, that it is not commercially based, since its provisions are not such as to vary proportionately with the character of the various contracts required and to keep pace with the wants of society.

The writer from a close observation of the causes which produce the large passenger-traffic returns on English railways, and which draw out such a large proportion of third-class travel there, is inclined with reason to believe that the principal reason for it is the very extensive cheap excursion travel which is so actively pushed in England and for which the tariff is far below the ordinary rate. In this respect England is almost an exceptional country, and has built up a system which is most profitable, and is worthy of a careful analysis by us on this side, to see how far it can be followed out here. Notable instances exist of excellent results in America by pursuing a similar policy, but there is still great diffidence in regard to its general adoption by those who know.

FRANCIS J. LEE.

The Boston & Albany Engine Again.

TO THE EDITOR OF THE RAILROAD GAZETTE:

A few additional facts in regard to the Springfield locomotive are herewith presented, which may or may not satisfy "W." (who is a Philadelphia locomotive builder of experience)* and "A Reader," who were so critical in your issue of the 28th ult. "W." has always had a suspicious eye on Mr. Eddy, and, moreover, the Philadelphia builders are ever ready to discredit his engine, simply on the self-assumed ground that it is "at variance with all what engine-builders of late years have taught were the correct principles." Now, who has yet laid down the standard principles of locomotive building, to depart from which is error? There are, it is true, general principles, but they are observed or not as the fancy of the builder dictates. In regard to the claim that "the tendency has been for the last five years to get as much iron as possible into one piece, to avoid bolts in frames and avoid riveting entirely." Mr. Eddy's frames have not a rivet in them, and are divided into four pieces, which experience shows is far more convenient and economical than if made in one piece. When one of these parts is broken a new one can be substituted without disturbing the rest—an impossible feat where the frame is in one piece—and the connected parts are as strong and more durable than if made rigid. This frame is identical with that known as the Mason frame, which was appropriated without leave or license by William Mason, from Mr. Eddy's designs. Then, how many boiler shells do the Philadelphia folks make that are of two instead of four and six sheets? The economy of two sheets is at once apparent, in that it costs no more to roll two than six, and the amount of caulking and riveting saved is very great, to say nothing of the risk saved from the decreased number of seams liable to rupture. With four and six sheets, the rule at the Quaker city, how consistent is it to advocate getting "as much iron as possible into one piece." Our genial Quaker friend is a little blinding in his statement about bolts and rivets, and if the above explanation does not meet his expectations he should have been more explicit.

The following is the cost, in cents per mile, of coal used in October, November, December and January, coal being rated here at \$7 per ton:

	Oct.	Nov.	Dec.	Jan.
Albany division, 50 miles.....	20.06	21.76	22.19	20.87
Boston " " 44 ".....	15.40	16.05	16.04	16.90
Springfield " 107 ".....	15.00	16.52	17.71	16.53

This includes engines on the mountain branch of the Springfield division which help freight and heavy passenger trains up the 12 miles, 82 feet grade, from Chester to Washington. The Albany Division engines are mostly foreign, as are, also, those on the Boston end; while on the Springfield division the Springfield locomotive alone is used, and the cost for repairs per mile, in cents, for the four months mentioned is: October, 2.96; November, 2.74; December, 3.19; and January, 4.14. Those on the Boston Division are lighter and of less capacity than those on the two divisions west.

The "Norfolk," a regular passenger engine running between Springfield and Pittsfield, has, for the last 76,000 miles run, cost for repairs only eight-tenths of a cent per mile. She was built in 1868, weighs 35 tons, has 16 1/2 x 22-inch cylinders, 19 x 1 1/2-inch ports, and 5 1/2-foot drivers.

The insinuation that the mogul "Brown" was "possibly

not a good engine," a "petted offspring," and a "waif," is a gratuitous insult. The "Brown" was never in the Springfield shops, and moreover Mr. Eddy had never any handling of her. Before the trial on the west end the local master mechanic put her in excellent repair, and after the first five days' run she was completely overhauled by the Boston management who put on their own engineer and fireman these remaining on the "Brown" the rest of the time. The "Virginia" was new, but the "Adirondack" had run the same time as the "Brown." So much for the "waif."

There was a small mistake in figuring the price of coal. Instead of \$600 cost for the Springfield engines, it should be \$618. The reference to emery on a dry rail is what Josh Billings would call "Sarkum." Concerning the number of pounds of water evaporated per pound of coal, or the amount of energy developed for that weight, I have no means of knowing.

The statement of your second correspondent, that the Eddy engine has a 6-inch dry pipe, was based solely on his imagination. The real measurement is 3 3/4 in. inside diameter, thus reducing his area of 28 1/4 inches to 11.044 inches. If either of these gentlemen will write to Mr. Dudley, who is in the employ of the Eastern Railroad Association, I feel confident that he will verify this assertion, viz., that there is not any engine in this country weighing 42 tons and under, and having no smaller than a 4 1/2-foot wheel, that can pull more or cost less than the Springfield engine.

The parties interested in this discussion ought certainly to hope that such a test as you referred to editorially last week will come to pass. Important disputed points would be satisfactorily settled beyond further controversy by such honorable and impartial judges as you suggest.

SPRINGFIELD.

The Office and Value of Railroad Commissions.

The Legislature of Massachusetts, now in session, is making efforts to reduce the expenses of the state government as much as possible, and the various commissions of the state are among the objects which receive most of its attention. With this end in view, the Railroad Committee of the House is investigating the Railroad Commission. It addressed a letter of inquiry to the Chairman of the Committee, which, with his reply, will be found of general interest:

HOUSE OF REPRESENTATIVES,
BOSTON, Feb. 11, 1879.

MY DEAR SIR: The Committee on Railroads desire that, if it is agreeable to you, you would express to them in writing your views with reference to a reorganization of the Board of Railroad Commissioners. First, as to whether the number could be reduced with advantage. Secondly, whether the offices of clerk and accountant could be consolidated, or if any change should be made in the salary of either of those officials. Thirdly, whether the Railroad Commission could, with advantage, be consolidated with any other commission or commissions, and any other facts or opinions in reference to the general subject that may occur to you.

Very truly yours,
HON. CHAS. F. ADAMS, Chairman Railroad Commissioners, Boston.

REPLY BY MR. ADAMS.

BOARD OF RAILROAD COMMISSIONERS,
BOSTON, Feb. 20, 1879.

Charles S. Osgood, Esq., Chairman Committee on Railroads.

DEAR SIR: I have to acknowledge the receipt of your favor of 11th inst., relating to a reorganization of the Board of Railroad Commissioners, and requesting me to give the Committee my views generally in relation to that Board, the number of its members, their duties, compensation, etc. I do this with the more freedom, as, for reasons already known to the Committee, the matter is one in which I do not feel that I have any longer a personal interest. My connection with the Board is practically over. I do not propose to remain a member of it longer than is absolutely necessary for me to complete the work it now has on hand, growing out of the national convention of railroad commissioners recently held. This cannot occupy more than a year or eighteen months at most. So far as I am concerned, therefore, no action that the present Legislature can take will more than hasten a result which I am myself very anxious to bring very speedily about.

As the gentlemen of the Committee are aware, I have been a member of the Board ever since its original organization—ten years ago in June next. I am, therefore, quite fully acquainted with the policy which has been pursued in developing its work, and have very distinct ideas as to the course which should be pursued by those who may compose it in the future. In the first place, I wish to say that, whether owing to the fact that the Commissioners have not hitherto sought to bring what they were doing into constant publicity or other causes, there seems to be a quite general misconception as to the duties devolved on the Board, and the work done by it. As the nature and extent of those duties directly affect the answers to the more important inquiries contained in your letter, I shall, in the first place, refer to them.

These duties are of three general descriptions—first, those of a supervisory character as respects the railroads themselves; secondly, those which are both supervisory and judicial as between the railroads and the public; and, third, judicial duties as between the different railroad corporations.

The supervisory duties include the care of accounts, and responsibility for returns—in regard to which, under the Act of 1876 (chap. 185), the powers of the Board are of the largest character—the examination each year of tracks, bridges and appliances, and the investigation into accidents.

The supervisory and judicial duties, so far as the public is concerned, are most extensive, but undefined. They include the investigation on the spot into any and every complaint which may reach the Board in regard to the methods in which the railroads are operated, whether as affecting individuals or communities. They include also a jurisdiction over highway grade-crossings, the re-location of stations, and all the duties connected with the forming of railroad corporations, and their compliance, during the construction of their roads, with the requirements of law. The whole general railroad legislation of the last ten years is, in fact, built up on this Board as a foundation.

As between the railroad corporations themselves, the jurisdiction of the Board is both large and final. From it there is practically no appeal. All questions concerning

joint business between connecting roads come before the Commissioners as arbitrators. They alone can authorize grade-crossings. Under various special acts, also, they are called upon to establish rights, and to apportion heavy expenditures.

It should not be necessary for me to observe that a proper performance of these duties must, under any circumstances, occupy a great deal of time, and require certain peculiar qualifications. Not only is a good deal both of knowledge and of firmness necessary, but not seldom the questions at issue involve heavy outlays or a division of profits which directly affect the whole value of railroad properties. In one case, for instance, payments amounting to some \$60,000 per annum had to be apportioned arbitrarily; in another, the decision, one way or the other, involved an outlay of some \$600,000; and, in yet other cases, the whole profit on the business of corporations has been concerned. Neither in any of these cases, or in other similar cases which have come before them, were the Commissioners under any obligation to state reasons for the conclusions they arrived at. In almost every case they have disposed of also, at least of late years, their awards have, I believe, been sustained, and generally proved satisfactory to the parties.

I desire also to say that it is an entire mistake to suppose that the duties of the Board are diminishing as its work becomes systematized; on the contrary, not only are new duties of detail each year imposed on it by the Legislature, but the questions submitted for its action become more numerous and more important as it acquires in a greater degree the confidence of the public and the corporations. Indeed, never before have so many or so important questions required its attention as during the last year. This will be apparent from the examination of its annual report, now in the hands of the state printers.

Among the duties of the Commissioners, by far the most difficult and delicate are those which arise out of its supervisory functions over questions between the railroad corporations and the community. Its jurisdiction in this respect is, I believe, peculiar to itself. It is compelled to receive all complaints against the railroads of the state, no matter how they may reach it, or to what they may relate, or whether coming from communities or individuals, and to investigate and find some remedy for them. In doing this, the Commissioners have no power except to recommend and report. Their only appeal is to publicity. The Board is at once prosecuting officer, judge and jury, but with no sheriff to enforce its process. The method of railroad supervision is peculiar to Massachusetts; but I do not hesitate to say that I believe it is the best and most effective method which has ever been devised—the best for the community, and the best for the corporations. It needs, I am confident, but to be developed and understood to be universally adopted. In dealing with railroads, as between railroads and individuals, it is futile to talk about laws, declaratory and penal, and the usual process of the courts. Except in extraordinary cases, the remedy through this process is too slow and too expensive, while the power and wealth of the corporations, as compared with individuals, is too great. It is altogether different in proceedings before this Commission. There are here no technicalities, or forms of procedure. The investigation takes place at once and upon the spot, and a conclusion is reached with no unnecessary delay. That conclusion cannot be enforced in law, and carries weight only in proportion to the reasons adduced in its support; but in practical experience the recommendations of the Board have almost never been disregarded. It is true they have sometimes been complied with under protest, and with the utmost reluctance; but they have almost invariably been complied with. First and last they have covered all sorts of questions, from the putting on of a system of trains to the adoption of some improved appliance of safety—questions which could hardly have been reached in any other way. Statements of these will be found accompanying our reports during the ten years they have been issued; but only the more difficult are there given. The many other and similar cases settled by private conference are nowhere recorded.

I am very confident that this principle of public supervision might be developed so as to work a complete solution of the railroad problem as it presents itself in this country. To do this, however, it must be developed by men who are not only thoroughly competent, but who enjoy the confidence both of the community and of the corporations. If they have not this, they are powerless: if they have it, there is nothing they cannot bring about, no abuse they cannot correct.

Having said thus much, I need not add that it is perfectly useless to expect this Board to develop into what it might be, and what it must be if it is to be of any use at all, unless it is composed of men very carefully selected for the position. They have nothing outside of themselves to sustain them. If the Board is to consist of men of detail, or clerks, or professional office-seekers, or politicians, it may as well—in fact, had much better—be abolished at once. Like other similar boards so constituted elsewhere, it will speedily fall into contempt, and be swept away. Its incompetence could not long be concealed, and neither the corporations nor the public would tolerate it.

Whether, under certain conditions, the number of its members could not be reduced without impairing its efficiency, I am not clear. As public boards go, however, I do not see how it could. It was originally organized to consist of one engineer, one representative of the active business interests of the community, and one person of legal training to act as its mouthpiece, and to attend to its legislative duties. This organization has been steadily continued to the present time, and seems to me wise, and to have in it nothing superfluous. In the first place, an engineer is absolutely essential. If the Board did not contain one, it would have to employ one. His services are in constant requisition. In the second place, some well-informed and largely-acquainted representative of business circles is very necessary to enable the Board to accomplish desired results. As a matter of fact, these results have usually, in the past, been brought about through directly dealing with presidents, members of boards of direction, and influential men of business. They are so being brought about to-day. If the Committee will imagine a similar board elsewhere—in New York, for instance—they will at once see why this is necessarily the case. The matters coming before it are not mere questions of law and of fact; they involve many practical considerations; and, to deal with these successfully, it is, above all, necessary to know whom to apply to, and how to reach them. This will always continue to be the case; and, so long as it is so, the aid of some capable business man will be essential. As to the legal adviser and general mouthpiece, the commission could not get along at all without one. He practically gives the shape to everything it does. Where, as in this case, a board depends for its power almost exclusively on the way it is able to present facts to the public, it can accomplish nothing unless it contains some one specially trained to do this effectively and understandingly. I am, therefore, wholly unable to see how the Board could be reduced in numbers without impairing its efficiency, unless some universally accomplished man could be found to perform all its duties; and his talents would undoubtedly command in the market about five times as much as the state would be willing to pay him.

As respects the Commission itself, I regard it as still an experiment. It has not yet, I very readily agree, reached a point at which it can be spoken of as an assured success. As

an experiment, however, it is the one single thing of the kind which holds out any promise of a rational solution of the railroad problem. On this point, which I now feel at perfect liberty to discuss, permit me to say there is hardly room for two opinions. The idea as respects railroads which this Board originated and now represents—the supervisory regulation through publicity and intelligent discussion—has just begun to be developed. I feel quite confident I could produce whatever amount of evidence the Committee might desire, that, so far as it has gone, it is regarded as, in its sphere, the most hopeful indication of the time. That the more prominent railroad specialists so regard it, they will themselves say, if the Committee desire to hear them. That the experiment should not, therefore, now be abandoned, or its success jeopardized, is, I submit, a matter of more than local importance.

If it is asked what practical results the Board can point to in justification of its existence, I would refer to its record as contained in the annual reports it has submitted, which, in the country at large, and especially among the more intelligent men connected with the management of railroads, have not been thought devoid of value. More than this, I would call your notice to the present condition of the railroad interests of the Commonwealth. I entirely concur in the opinion expressed in the annual report of the Board just submitted, "that there is to-day no portion of the industrial machinery of Massachusetts, which, upon the whole, is conducted under a stronger sense of responsibility to the public, or with so great freedom from abuses in the conduct of its business, or with so anxious a desire to give reasonable satisfaction, as the railroad system of the state" (p. 30). The opinion here expressed may excite surprise, and the fact is certainly not generally appreciated; but a more careful inquiry would, I think, satisfy any unprejudiced man of its truth. The railroad corporations have borne their full share of the losses and reductions of the last five years, as is made apparent in the report I have just referred to. Their income has fallen off 17 per cent. (p. 4); their rates have been reduced, on an average, 16 per cent. (p. 17). Yet, comparing this interest with other great interests, its recent record has shown nothing like the irregularities in the cotton manufacturing interest as developed in the Fall River exposures, nothing like the embarrassments of the banking interest as evidenced in the stay-law of 1878, no hardship to its employees such as led to the troubles in the leather interest and the strikes at Lynn and elsewhere. It would be absurd in me to claim that this marked improvement in the tone and character of the railroad management is wholly, or even in greater part, due to the existence and influence of the Board of Railroad Commissioners during the years in which it has taken place. I do, however, believe that to the Board belongs some, and no small portion, of the credit of this change; and that, because of this Board, the relations of its railroad corporations with the people of Massachusetts are to-day, whether they realize it or not, more satisfactory than are the similar relations in any other portion of the United States. I also claim, without any hesitation, that, through the careful oversight of this Board, the general railroad legislation of Massachusetts is at this time more complete, more intelligible and far more systematic, than any of any other state.

Passing from these general and preliminary considerations—very necessary, however, to any correct understanding of this matter—I come now to what is, after all, the main point at issue: I mean the compensation to be paid to the Commissioners—the matter of salaries. I am wholly unable to see how the services of men competent to do the very peculiar work I have described, and to yet further develop it, as it has to be developed unless it is to end in failure, can be secured and retained, unless a suitable compensation is provided for them. Certainly no private enterprise would dream of securing such service in any other way. The railroad corporations in the management of their own affairs understand this perfectly well. To the arbitrators of their own selection they pay salaries more than twice those now paid to the members of this Board; indeed, the present salaries of the Commissioners are of the third class as compared with those paid to railroad officials, ranking with freight agents and the like, below those of superintendents, and less than half those of presidents. But it is with presidents and boards of direction that the Railroad Commissioners have to deal, and to deal habitually. Only in dealing with them, and as equals at that, can they hope to produce any considerable results. I respectfully submit that it is not reason or common sense to expect these men to give any great weight to the recommendations as public officials of those whose services they would not care to secure as remote subordinates, if, indeed, they had not already declined them.

Going yet a step further, I do not, in the position I now find myself, hesitate to say, that, to my knowledge, the usefulness of the Board has heretofore been greatly, and I fear permanently, impaired by the smallness of the salaries paid to its members, which could not and did not, in competition with the corporations, command the services of suitable men possessing no private means. In my opinion it is futile to hope that any smaller salaries will be able to command such men in the future. I do not believe this Commission, or any other like it, can be made a permanent success on such a basis. In the long run it will only command whatever material the corporations do not care to take—their leavings in a word. This will not and cannot do the required work. And then, again, it will be argued that the thing is a failure, and the work cannot be done. This is not so; but I see no very good reason why any competent man should sacrifice the material success of his whole life in order that he may have the pleasure of serving the public at less than half what he can readily command elsewhere.

Taking these facts into account, considering the nature, importance and amount of the work to be done, the interests involved in the decisions, from which there is no appeal, the qualities and training necessary for the proper performance of their duties, and the position the Commissioners must occupy to give any value to their conclusions—standing as they do between the community and their richest and most powerful corporations—taking all these things into consideration, I submit that the members of this Board should in all respects be placed on an equality with the judges of the Superior Court. And let me here call your attention to the fact that this was exactly the plan upon which the Board was originally created. It was to rank with the Superior Court, and the salaries of its members were almost exactly the same as those of the judges of that court. They so remained until 1872, when the latter were increased to what they now are, the former remaining at their original amount. Thus the original idea was departed from and has never been returned to. A reduction here will, therefore, not be a return to a former standard, for the first standard was never changed; but it will be a reduction made where there never was an increase.

It only remains to refer to the suggestion of some possible reduction in the clerical force of the commission, including its Examiner of Accounts. If the business of the Board could be equally distributed throughout the year, week in and week out, I think it very probable that one competent man, working full business hours, could, with occasional assistance, do all its clerical work. This, however, is not, and never will be, the case. The work of the Board is unequal; during the summer it is light; but during the autumn and winter it is so considerable that, even with the present force,

it is usually in arrears. So far as the Examiner of Accounts is concerned, his services are indispensable. He must be an expert in his business, and upon him the whole value of the returns published by the Board depends. A mere ordinary accountant cannot do the work, and no dependence whatever can be placed on his examinations. Before the present Examiner was employed the returns of its railroad corporations published by this state were merely deceptive. They are now extremely valuable, and annually becoming more so. They contain all the information anywhere accessible in regard to the management of more than \$175,000,000 of property, and the annual levy and expenditure of over \$30,000,000. To practically abandon all effort to supervise and make honest and intelligible the handling of these vast sums, in order to possibly save a part of \$2,500 a year, is, I respectfully submit, nothing less than economy run mad. Possibly, however, an arrangement could be effected by which a sufficiently competent expert, having regular employment not occupying his whole time elsewhere, could give to the state such amount of service as it absolutely needs, and no more; thereby saving a portion of one salary. If, however, because of this economy, the railroad returns fall again into confusion, or their quality deteriorates, the loss to both corporations and community would be ludicrously out of proportion to the very trifling saving effected.

As respects Mr. Crafts, the regular clerk of the Board, who has held that position ever since it was organized, I can only say, that, unless the Board is to be gradually discontinued, his duties in it are duties which have got to be performed by some one. It cannot get along any more than a court of law can without a clerk; and that clerk, in the interest of the public, must be familiar with its routine. An accountant is no more able to perform his duties than he is to perform those of an accountant.

I do not doubt that efficient boards of commissioners will, in the future, be found an essential part of the machinery of our governments, in connection with the railroad system. I do not, however, believe that the affairs of as many corporations, annually handling as large sums, and doing as much business, as the Massachusetts corporations, will be looked after with a smaller or less costly force than is now employed in this office. Certainly, the government Auditor of Pacific Railroad Accounts at Washington, with less than a quarter part the work to attend to, now has at his disposal more than twice as many clerks.

In conclusion, I desire to call your attention to the fact that the material interest this Board supervises is the largest in the state. It is the interest upon which our whole industrial system hinges, and the tolls and charges the corporations annually levy amount to more than our entire taxation—state, county, and municipal. During the ten years this Board has been in existence, its entire cost has, in round numbers, been \$162,000. During the same time the gross receipts of the corporations have amounted to \$322,000,000. The cost of supervision, therefore, has been almost exactly the one-twentieth part of one per cent. of the gross receipts; in other words, the entire expense of this Board since its organization, if charged to the Boston & Albany road alone, would not have reduced the amount of a single one of its regular semi-annual dividends by one per cent. Considering the fact that this supervision has covered the matter of accounts, as well as the hearing and adjustment of many questions of great importance, involving large sums, not only between the corporations themselves, but between them and the public—questions which only in this way could be adjusted—considering these facts, I submit that, judged even by the somewhat exaggerated standards of economy now in vogue, the cost of this Board has been not only reasonable, but remarkably small. However, on this question of cost, let the Committee inform itself through the representatives of the corporations. The Commissioners will, I think, be perfectly willing to abide by their opinions. With the questions which come before this Board for decision these corporations cannot afford to have it composed of ignorant or incompetent or corrupt men. If it ever is so composed, they will assuredly cause its abolishment, and that promptly. Of this, at least, I fancy the Committee hardly needs to be assured.

I am, etc., CHARLES F. ADAMS, JR.,
Chairman Railroad Commissioners.

THE SCRAP HEAP.

What it Takes to Make a Railroad President.

A son of Maine who went West in early youth and has there attained wealth and an honorable position, returned last summer to visit his old home. At the village store he saw an old man whom he had known in his younger days. He accosted him, but was not recognized. "So you don't remember me," he said; "I am John R—." "You!" exclaimed the old man, "you don't mean to tell me that you are John R—?" "I certainly am," said the visitor, shaking him by the hand, "and I'm very glad to see you again." "Well," persisted the old man, "I never did. To think that this is you. They tell me you've grown awful rich, John." John admitted that he had "saved something." "And they say you're the president of a railroad and get a big salary." Again John had to admit that rumour spoke truth. "I'm glad on it, John! I'm glad on it, my boy! It beats all what circumstances and cheek will do for a man."—*Boston Transcript.*

Tramps.

Score one for the tramp! A tramp who was stealing a ride on Erie train No. 12, a day or two since, no doubt saved from disaster this popular train, the Atlantic express. The train was large, composed of 15 cars, and was being drawn and pushed. While passing between Oxford and Greycourt, eastward bound, the fireman on the hind locomotive noticed a tramp on the platform of the mail car making strange and excited gestures, the air brakes were applied and a stop made when it was found that a pair of trucks under the mail car had left the track and were running along on the ties. A loose wheel had caused the accident. The train was brought to a stand-still but a few rods from a bridge, through which the train would probably have plunged had it not been for the timely warning of the tramp.—*Pateron (N. J.) Press, March 5.*

Persistent Train Wreckers.

On Saturday night a third attempt was made to wreck the North Pennsylvania Railroad train which leaves South Bethlehem at 6:10 in the evening. A large quantity of iron rails, sills and stones were placed on the track near Lansdale for the purpose of wrecking the train, but Dr. Moyer, of that place, discovered the obstructions and removed them before the train dashed by. The previous attempts were both made in a deep cut near South Bethlehem. The first was also unsuccessful, the engine being lifted up and passing safely over a large stone that had been buried between the rails. The second attempt was made on the night of the funeral of the late Dr. Henry R. Linderman, when the train was thrown off the track by a misplaced switch, though the prompt application of the air-brakes prevented a very serious mishap. It is believed that the object of the wreckers is plunder, this train usually being a heavy one in passengers and express matter.—*Philadelphia Times.*



Published Every Friday.

CONDUCTED BY

S. WRIGHT DUNNING AND M. N. FORNEY.

CONTENTS.

ILLUSTRATIONS:	Page.	EDITORIAL NOTES:	Page.
Apparatus for Testing	139	NEW PUBLICATIONS:	147
Lubricants	139	GENERAL RAILROAD NEWS:	
Curve Diagrams	140	Meetings and Announcements	148
Beck's Quieting Chamber	141	Elections and Appointments	148
CONTRIBUTIONS:		Personal	148
Advantages of Iron Cars	139	Traffic and Earnings	148
Atmospheric Pressure for Elevators	140	Railroad Law	149
How Near Should the End of a Curve Join the Tangent?	140	The Scrap Heap	143, 149
Good Mechanics	140	Old and New Roads	150
The Boston & Albany Engine	141, 142	ANNUAL REPORTS:	
Beck's Quieting Chamber	141	Central of Iowa	151
The Development of Passenger Traffic	141	Montpelier & Wells River	152
EDITORIALS:		Hannibal & St. Joseph	152
West Virginia Railroad Legislation	144	Housatonic	152
Railroad Commissions	144	Eastern	152
The Catalpa Tree	145	MISCELLANEOUS:	
German Railroad Politics	146	Testing Lubricants	130
Winter Grain Movement	146	Office and Value of Railroad Commissions	142
Record of New Railroad Construction	146	Construction of Railroads in Mexico	147

EDITORIAL ANNOUNCEMENTS.

Passes.—All persons connected with this paper are forbidden to ask for passes under any circumstances, and we will be thankful to have any act of the kind reported to this office.

Addresses.—Business letters should be addressed and drafts made payable to THE RAILROAD GAZETTE. Communications for the attention of the Editors should be addressed EDITOR RAILROAD GAZETTE.

Advertisements.—We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay, EXCEPT IN THE ADVERTISING COLUMNS. We give in our editorial columns OUR OWN opinions, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.

Contributions.—Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies, the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particulars as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to ALL DEPARTMENTS of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.

WEST VIRGINIA RAILROAD LEGISLATION.

The Baltimore & Ohio Railroad has been the latest object of legislative persecution. Of all the trunk lines east of the Ohio this has the lightest local traffic. There are no large towns between Baltimore and the Ohio River, the agricultural production is not more than moderate; the manufactures, except at Baltimore and at Wheeling, of much less extent than those on the lines further north. The Cumberland coal mines afford a heavy traffic, and there is considerable from some mines of gas coal in West Virginia; but, compared with the Pennsylvania Railroad, its local traffic must be very moderate indeed. The result, of course, is that, to support the road, in spite of its moderate capital account, local rates must be comparatively high, and, accepting, as it must, the same through rates as its competitors, the difference between its through and local rates would naturally be greater than on any other trunk line. As so often happens, this great difference became a cause of complaint. People a hundred and fifty miles from Baltimore complained that they had to pay on shipments to Baltimore more than was charged from Chicago, nearly 700 miles farther off—which frequently they might do and yet have quite moderate charges. A year ago last winter the West Virginia Legislature appointed a committee to investigate this subject during the vacation and report at the present session. This was done, and a bill was presented, which we believe we are safe in calling the most monstrous production ever proposed as a railroad law—and this is saying a great deal. It proposed not only a system of equal rates per mile, but it made the basis of that system whatever the rates might be between Chicago and Baltimore! According to this, the rates on wheat for the whole period, from the middle of January to September last year, might not be more than one cent. per bushel from Harper's Ferry to Baltimore and 1.2 cents from

Martinsburg, and the only alternative to accepting these rates would have been the abandonment of the through traffic. And this doubtless would have been the result if the law had been passed and had been valid. The railroad would have had to get the whole of its profits from the small local traffic instead of securing some small part of it by carrying a large amount of the immense through traffic. Vice-President Keyser, of the Baltimore & Ohio, made an excellent and convincing argument on the subject, but though it may have convinced the Legislature of the impolicy of this bill, which it did not pass, it seems not to have warded off its hostility to the Baltimore & Ohio Railroad Company; for it soon took other action, which, if prosecuted as proposed, would have injured the company a great deal, and probably have put an end to some of the most important industries of West Virginia. It seems that by a strict construction of the charter of this road from West Virginia, it is not permitted to make special rates to any place or person. Now, in the carrying of coal, etc., to blast-furnaces, and in carrying gas coals to the West and to the sea-board in competition with gas coals from other districts, as in the scores of similar cases that come up on almost every railroad, the Baltimore & Ohio has accommodated itself to the market by making special rates, it being a question of losing the traffic or accepting less than the average rates on it. But both houses of the Legislature joined in a resolution requesting the Attorney General to bring a *quo warranto* suit against the company, asking for the forfeiture of its charter. Just before this, and while the *pro rata* law was pending, the company had issued a new local tariff, making, it is said, material reductions in the ordinary rates. Under this, however, special rates were to be granted as before, or as might be necessary. When the *quo warranto* resolution was adopted, the company announced its intention of withdrawing all special tariffs in order to comply strictly with the terms of its charter. This would have been fatal doubtless to a very large part of the gas-coal mining of West Virginia, and would have deprived the important Wheeling manufactures of the benefit of the Baltimore & Ohio as an outlet to the sea-board. At that point the Baltimore & Ohio competes with the Pennsylvania, and its rates are based on those to other trunk-line competing points; but as the Baltimore & Ohio was not to be permitted to charge less in proportion at this place than at other places in West Virginia, it must either sacrifice nearly all the profit on its traffic east of Wheeling, or else bring up the Wheeling rates and so virtually abandon the through Wheeling traffic. So far as through shipments are concerned, the Wheeling people might not have suffered much, as the Pennsylvania Railroad stood ready to take everything that was offered, and would not be affected by the West Virginia legislation. But for the works getting their supplies of coal, etc., from points on the Baltimore & Ohio Railroad it would have been another matter. As illustrative of some of the cases involving important industries on this road, we take the following from an argument made by Mr. Keyser before the Joint Railroad Committee:

"We will take the gas coals of West Virginia. These coals find their market in Baltimore, and at other points on or tributary to the coast. They come in competition with similar coals from Pennsylvania, and of late years, since the export trade of the country has grown so disproportionate to the import trade, with the Newcastle coal brought from Liverpool and other British ports as ballast.

"The foreign coals to a very considerable extent establish the market price, and this price is therefore, in a great measure, fixed by the amount of tonnage coming to this country for return cargoes of grain, etc. Therefore, the coal operators are obliged, in making their contracts, to meet the competition of other coal fields as well as the foreign competition; and, in order to enable them to do so, the Baltimore & Ohio Company must, in advance, place them in a position to compete, as the freight charges are by far the largest element of value, and to do this the company must be at liberty to vary the rates from time to time as the exigencies of the case demand.

"To cite another instance, there are on the line of the Baltimore & Ohio road a number of blast-furnaces in operation. These depend largely upon the company for transportation of their raw material as well as their manufactured products. The continued depression in the market has forced the owners and operators of these works, from time to time, to apply to the company for reductions in rates. Had the company not been in a position to meet these demands, the effect would have been to force the stoppage of these works, and thus not only entail a severe loss on the capitalists, but a more severe loss to the citizens of this state by throwing large numbers of people out of employment at a time when you must all recognize the difficulty of their obtaining it elsewhere."

The natural effect of this withdrawal of special rates was to bring down representatives of many of the most important industries of the state to complain that the action of the legislature was likely to ruin their business. This, or something else, seems to have had its effect, for a telegram says that the legislature has recalled its *quo warranto* resolution, and apparently the industries of the state will be permitted to proceed without any additional obstacles to their suc-

cess placed in their way by the Legislature, which has formally accepted the new local tariff proposed by the company, and authorized the making of special rates in certain cases, on condition that such rates be granted to all shippers by the car-load without discrimination. That it could have attempted such action as was first proposed in the face of the discussions of the past ten years, is disheartening. Apparently, the railroads of this country, as the price of their existence, must keep permanently in service a corps of instructors in the elementary principles of transportation and rate-making, to enlighten the several state legislatures. We have an excitement in one state, threatened or actual legislation, years of discussion, and finally, perhaps, a glimmer of light in the minds of law-makers, who, if they do not understand the subject fully—for which certainly they are excusable—at least discover that they may do a great deal of harm by wrong action. We may think then that the work is done, in that state at least. But no: the very next legislature perhaps goes at the subject in the same barbarous way, and has to be taught from the elements up in order to keep it from sacrificing the railroads and many other important industries of the state under some juggernaut of a law. The work is never done, but has to be repeated year after year, and in state after state. Every railroad is assumed to be guilty unless it proves itself innocent, and it may be put on trial for the same offense an indefinite number of times. Actually a very considerable proportion of the time of higher railroad officers has been spent of late years in defending their companies from legislative attacks, and skill in meeting such attacks seems to have become one of the indispensable qualifications of an American railroad manager.

RAILROAD COMMISSIONS.

The state railroad commissions that have become so common of late years did not have their origin in the "Granger" excitement, as many suppose, but had been established in Ohio and Massachusetts before that excitement, and indeed there was one for a time in New York, somewhere about the year 1850. The western complaints against the railroads, however, caused commissions, or something called by that name, to be established in many states, in many cases they being intended to be prosecuting officers rather than investigators or judges. With the decline of the Granger excitement, however, there has been no disposition to give up the commissions, even where they have been utterly inefficient; on the contrary, there have been several established of late years. There are railroad commissioners now in Maine, New Hampshire, Vermont (we believe), Massachusetts, Connecticut, Rhode Island, Virginia, Ohio, Michigan, Illinois, Wisconsin, Minnesota, Iowa, Missouri and California. Some of these, apparently, do nothing, but most of them receive returns and reports, while several were instituted especially to see to the execution of certain laws restricting in some way the rates charged by railroads, some of which cannot be carried out, causing the officers to appear in a somewhat ridiculous position—evidently not doing what they were created for the purpose of doing, and so seeming altogether superfluous in the administration of the government.

Probably nothing has done more to render the idea of state railroad commissions popular than the brilliant and thoughtful essays on the relations of the railroads to the public and the current history of railroad affairs from the pen of Mr. Charles Francis Adams, Jr., in the annual reports of the Massachusetts Railroad Commission. He has had ten years' service in that Commission, and has made it his business to study seriously the railroad questions of public interest, in the light of economic laws and the equities of railroad owners and railroad users. At the time when the first reports appeared he was almost the only serious student of these special questions, of any ability and any skill in presenting his views, in this country. When the Granger agitation became fierce, therefore, naturally all thoughtful inquirers heard him gladly, and he has probably done more than any other man to mould public opinion with regard to the proper objects, limits and processes of governmental railroad legislation, and especially among thoughtful people, including the better class of legislators and journalists. It did not matter that the legislation by which some of the Western States attempted to regulate their railroads was exactly what the Massachusetts Commission condemned; they still adopted the feature of the commission in their blind groping for a remedy for real or supposed evils, feeling that the Massachusetts Commission had the name of doing good work and that something of the same name might serve to satisfy the popular demand, whether it did the same work, or indeed any kind of work, or not.

It is therefore interesting to find Mr. Adams put upon his defense, as it were, by the efforts made by the Massachusetts Legislature to cut down offices not indispensable, and to reduce the expenses of others. His letter to the railroad committee is substantially a defense of the railroad commission, a statement of the uses it sub-serves, and the results it has tended to produce. As such it will be read with interest, but doubtless what will attract most attention in his letter is Mr. Adams' announcement of his intention soon to retire from the Massachusetts Commission. We are accustomed elsewhere to see almost yearly changes in railroad commissions, but

somehow Mr. Adams has become so identified with the Massachusetts body that we do not think of them apart.

It is often objected to bodies like the Massachusetts Commission that they have no authority. They may investigate and report ever so flagrant an abuse, but they cannot order it to be abated. They may find rates extortionate, discriminations unjust, appliances unsafe, but their power ends in saying so. This is the public objection. But Mr. Adams maintains, and the history of his Commission sustains him, that this power to investigate and report is sufficient, that is, truly remedial.

The Railroad Commission represents the state, the community; its power to investigate gives it the ability to know whether complaints are reasonable or not, and its position gives weight to its opinions before the law-making power. When, therefore, it reports that a wrong exists that should be remedied, the railroad company must feel very sure that there is no wrong if it neglects to carry out its recommendations. It is not simply a matter of public opinion, but a respect for the law-making power that lies behind public opinion, which in this age and generation very commonly makes men as well as corporations heedful to avoid legitimate causes of complaints against them, lest a worse thing befall them in the shape of Potter laws, and the like. And the formulated public opinion which a railroad commission may be said to express, is much more formidable than the loose, floating, nebulous prejudice or opinion which is apt to prevail otherwise. The commission's expression is supposed to be that of competent men after a full investigation, and so has something of the authority of the decision of a court after a full hearing.

There still remain a good many railroad officers who object to railroad commissions or any special railroad legislation on principle, claiming that railroad business is just like any other business and only needs to be let alone. But there are but few of these who do not see and acknowledge that this is no longer a practical question. Railroad business is not going to be let alone. It is not let alone in any civilized country, except perhaps in some of these United States; the relations of it to the state have been discussed for forty years on the continent of Europe much more earnestly than here until within the past few years, and there is not the slightest indication that any where state supervision is being relaxed, though in most European states there has been great progress in loosening the restraints on general industry, and other freedom of action of the people. Indeed, of late years there has been a distinct movement toward a closer relation of the governments with the railroads.

The practical question then seems to be not whether there shall be any state railroad regulation, but what shall be the manner and extent of such regulation; and the railroad manager who chafes at any interference or "meddling," as he calls it, if he is sensible and politic, will restrain his feelings as well as he can, and confine his efforts to the opposition of the most irrational and injurious methods of regulation—there being usually enough of these proposed in state legislatures and Congress to occupy all his spare energy.

Certainly the methods of the Massachusetts Commission, which have been to a great extent adopted in Michigan, Wisconsin, Minnesota and Iowa, we believe, are as little injurious to the railroads, to say the least, as any that could well be devised that should pretend to regulate at all. Its interference is felt most in its direction of uniform methods of keeping accounts for the state reports, which of course may be pushed to a burdensome extent, but otherwise there is scarcely anything that it can dictate to the corporations.

But Mr. Adams well says that the value of a commission of this kind depends wholly on the character and ability of the commissioners. With the habits of appointing officers and the tenure of office common in most states, the chances of getting men of character and ability and keeping them in office long enough for them to learn their business thoroughly (for it is a business for which long experience in railroad management even only gives a partial preparation) are so slim that we must expect the inefficient commissions to be the rule and the efficient ones the exception. That they have done so little good work heretofore is doubtless in many cases due to the bad laws under which they were created. They were expected to do a work that could not be done. Failing in this, they seem not to have made proper efforts to do the work that could be done. Their reports should at least have given a complete railroad history of the year for their respective states; but they have almost never done so, hardly going outside of the figures of the companies' reports, while these latter have been presented in a shamefully incompetent manner. A good body of railroad statistics is a fundamental requirement of any intelligent railroad legislation, but scarcely any commission has prepared such. This is a complaint, however, that could probably be made of almost all the government reports that contain any statistics, and is largely due to the fact that very few have any comprehension of statistical methods, what it is important to establish and how to present it. For this reason we heartily welcome the appointment of a professional economist and statistician, Prof. F. A. Walker, of the Sheffield Scientific School, on the Connecticut Railroad Commission. Any one acquainted with Prof. Walker's work as Superintendent of the last census, and with the magnificent statistical atlas which was prepared under his direction, can have no doubt of his ability in the presentation of statistics. And it needs to be understood that the most important questions that railroad commissioners have to consider are at the bottom questions of economics, and that ability as an economist is one of the first requirements for efficiency in the position. This has been Mr.

Adams' strong point, aside from strong common sense and a disposition to look facts in the face, and learn from experience. There are at least two men in Connecticut especially well qualified in this respect, Mr. David A. Wells and Prof. Walker; but heretofore no one seems to have thought of them in connection with an office in which their peculiar learning and abilities may be of the greatest value to the community.

The Catalpa Tree.

About a year ago Mr. E. E. Barney, the well-known car-builder of Dayton, O., issued a pamphlet with the modest title "Facts and Information in Relation to the Catalpa Tree." Another pamphlet, of a similar character, containing "additional facts" relating to the same subject, has just been issued by the same author. Certainly, if entirely disinterested work is ever worthy of recognition, such acknowledgment is due to Mr. Barney. For nearly ten years he has devoted much time and money to collecting information with reference to the little-known value of the timber of this tree, and has disseminated what he has learned in the most liberal and unobtrusive way. He has not only given this information to the public, but he has also collected and supplied seed to those who wished to cultivate the tree at the bare cost or probably less than the cost to him of furnishing it. The work which he has undertaken to do is simply to make known the valuable qualities of this timber, which heretofore have not been recognized and were almost entirely unknown.

The catalpa, it seems, has for thirty years or more been extensively planted in the streets of Dayton as a shade tree, owing to the profusion and beauty of its blossoms and the luxuriance of its foliage. For such purposes it has been known over a very large area in this country, but until Mr. Barney called attention to the fact probably very few people were aware of the remarkable durability of the wood and its power of resisting decay, even in the most exposed situations. Besides this, its other advantages are its *lightness* (it is very little heavier than white pine), its *strength* (under transverse strain its resistance was about $\frac{3}{4}$ that of oak and $\frac{1}{2}$ that of ash), its *toughness* (it deflected three times as much as oak or ash under a transverse strain), its *hardness* or resistance to compressive strains (which is about $\frac{1}{2}$ that of oak, and greater than that of yellow pine). Besides this it has a beautiful grain and color, and is susceptible of an excellent finish as an ornamental wood. So far as known, the wood is not attacked by insects. The tree is very easily propagated, is adapted to a great variety of soil and climate, and is of very rapid growth. All these qualities would seem to make it a very valuable timber, and much credit is due to Mr. Barney for having made them known.

Its value seems to have been recognized in very early times by the French settlers on the Wabash, and probably by the Indians before them, and, as one writer on the subject has said, "It has taken the intelligent American citizen nearly two centuries to acquire this information."

General Harrison, afterward President, was one of the first persons to call attention to the value of the catalpa as a timber tree. In 1825 he delivered an address at an agricultural fair, in which attention was directed to the importance of cultivating so valuable a tree. When Governor of the Northwestern Territory he had found it in the stockades and dwellings at Vincennes, Ind., which was a trading-post in 1702, and quite a settlement in 1735. Part of the stockade at this place was built of catalpa trees, and it is said that they were perfectly sound when they were removed one hundred years afterward. Catalpa posts set by General Harrison in 1808 were taken up a few years ago, and were found to be sound and were reset at another place. There is testimony, perhaps not of the most trustworthy character, of logs of these trees which had fallen across streams, and had been used as foot bridges for a hundred years or more. In 1811 the earthquake near New Madrid, on the Mississippi, killed many catalpa as well as other trees. The catalpa trunks are said to be still standing and to be perfectly sound. A portion of one of these has been sent to Mr. Barney, and is now in his possession. He has collected a great deal of confirmatory testimony by issuing a circular, and by the publication of letters in the various newspapers. Reference can only be made to a very small part of this testimony.

One case is mentioned of a skiff made of catalpa wood which had been in use on a western river for twelve years, and which was still perfectly sound. The durability of this wood when used for fence posts is proved by many witnesses. Reports are given by different persons of posts which were put into the ground 30, 40 and 46 years ago, and of one which stood ninety years, and when examined were found to be still sound; another says "Fence posts of 22 years' standing are as sound apparently as the day they were put in;" a gate-post set in 1780 was taken up in 1871 and was found in fair condition; a picket fence was in good order after 40 years' service; a fence-post put into the ground 75 years ago was taken up, and although worn away below the surface of the ground nearly one-fourth of its diameter, it is still perfectly sound. Mr. Barney has sent us a piece of this post, the one side in its rough state, as it was in when taken up, the other beautifully polished and varnished. Rails made in 1800 were in use 48 years afterward; clothes-line posts which had stood in the ground for more than twenty years showed no signs of decay; fence stakes after being in the ground 18 years were found to be sound. A superintendent of a Western railroad says: "Fence posts twenty years in the ground are always as sound as when first put in."

The testimony which Mr. Barney has collected seems to establish beyond question the remarkable power of the

catalpa wood to resist decay, which naturally suggests its use for railroad ties. Whether its other qualities are such as to make it suitable for that purpose has not been made quite so clear. Its power of resisting compressive strains as already stated, Mr. Barney found, by experiment, to be about $\frac{1}{2}$ that of oak, and somewhat greater than that of yellow pine. He had two catalpa ties laid over five years ago and twelve one year ago in the track near his shop in Dayton, over which trains pass almost hourly. He reports that "all hold their spikes well and show no signs of mashing more than oak on each side of them. The road-master, who has watched them with much interest, says he has no better ties on the line of his road." On the Iron Mountain Railroad a number of catalpa ties were laid in 1868. Of these it is reported that the rails have worn into them from a half to one and a half inches, but they are all still perfectly sound. One of the officers of that road says that "the timber is too soft to admit of the ties lasting as long as some have claimed, though it has been conclusively proven that it is far superior to white oak, or any other kind of timber grown in this latitude." Another reports that "there is nothing to indicate that the catalpa ties do not hold spikes sufficiently well. Nearly all the spikes are in the same holes originally made when driving them over ten years ago. There has been no spreading of the track. I have examined the few ties the rails have settled into, and find none that will not last for a number of years yet by turning them over."

Mr. Barney has called attention to the fact that the catalpa, or at least one variety of it, has only from $\frac{1}{4}$ to $\frac{1}{2}$ inch of sap wood, which, he says, adds very much to its value for cross-ties. He therefore proposes, by sawing trees twelve inches or more in diameter through the middle, to make two ties of each length, and by placing the round side down, to give twelve or more inches of bearing surface for the rails, instead of eight. The fact that this timber has little or no sap wood will, if the ties are made in this way, enable it to resist decay. Of this plan Mr. Axtell, Superintendent of the Missouri Division of the Iron Mountain road, says: "If the ties were wider, as you suggest, there would be more resistance to crushing. With the joint-fastenings now in use, I see no objections to making ties, as you propose, from logs twelve inches or more in diameter, by sawing them through the middle, and placing the round side down. The bearing surface would thus be increased 50 to 100 per cent."

Specimens of the wood which Mr. Barney has sent us resemble chestnut or ash in grain, but when varnished are of a much richer amber color, which suggests its use for the inside finish of houses, cars, etc. The older specimens of wood are of much darker color than the new. Undoubtedly, like many other kinds of wood, it will, in this respect, improve with age. Of its use for construction purposes Mr. Barney says: "From the experiments I have made, there is no tree I would as soon use for the entire structure of a passenger car, including sills, plates, posts and the entire framework, also for outside and inside finish, as catalpa." No one is a more competent judge of these matters than Mr. Barney.

Catalpa wood is also said to be entirely free from the attack of insects, an advantage of much importance if it is used for some purposes.

All these facts, which Mr. Barney has been so indefatigable in collecting and disseminating, indicate that the timber of this tree is of extraordinary value, a fact which, to many, will be new information and which until recently has been known to very few. To the writer the tree was known in Southern Pennsylvania and Maryland, in boyhood, as the smoke-bean tree, and it then possessed the attraction of supplying the material for enjoying what was half-way between forbidden and unforbidden pleasures. As known then, it apparently had none of the qualities of a valuable timber tree. Its chief characteristics were great crookedness, or, as the phrase then was, it was "scragly." In the pamphlet, and other sources from which we have already quoted so extensively, it is shown that the tree does not have those characteristics when it grows in groves, and that, like nearly all timber trees under the same circumstances, it then becomes tall, erect and straight. One writer says that in South Missouri and on the Wabash he has seen it as a forest tree "of large size, tall and straight." The same writer says: "Nature has a process of her own, by which, if not interrupted, she confines the growth of the tree to the trunk and impels it upward—a process essentially necessary to adapt the trunks of all trees to a serviceable purpose. This process of nature is density of growth, and its effect is manifested in the spontaneous growth of all those tall, densely-growing forests from which are procured all our supplies of timber."

Abundant evidence is brought to show that this tree in Pennsylvania, Indiana, Illinois and Missouri attains to the diameter of three, four and four and a half feet, and that it is very easily propagated, is a rapid grower, and that one species of it has withstood the severest winters up to and even beyond 42° north latitude (the north line of Connecticut, Pennsylvania and Ohio, and nearly the latitude of Chicago). It will grow on almost any soil, although it thrives best in rich river bottoms subject to overflow.

For these reasons Mr. Barney advocates the extensive cultivation of this tree, especially by railroad companies. Detailed directions are given for planting and cultivating it, and any one interested in the subject would do well to send for a copy of his pamphlet, in which the experience of a number of persons who have cultivated the tree is given.

The two varieties are described as the early-blooming and the late-blooming. The flowers of the first appear three or four weeks earlier than those of the last. The first has been called the "speciosa" or hardy, and is a native of Indiana, Illinois, Missouri, Kentucky and Tennessee.

see, and will stand the frost two or three degrees further north than the late-blooming variety, called "Catalpa bignonioides" or common variety, which a native of Georgia and other Southern states, and is cultivated at the East as a shade tree. The hardy or *speciosa* variety is said to be straighter and taller, when grown separately, than the other, and in the forests is often three or four feet in diameter. The latter is the kind recommended for cultivation.

We learn that a number of growers of trees, or nurserymen, have planted large quantities of catalpa seed, and they will doubtless soon be able to supply any probable demand for trees. The Messrs. Landreth, of Philadelphia, have nearly a million of these trees under cultivation. One of the largest growers of forest trees for transplanting in the country has proposed to take not less than 160 acres in one place on the line of any road, put it in order and plant it in catalpa and take the entire care of it until the trees cover the ground, after which they will take care of themselves; the railroad company then to pay two cents per tree for each strong, healthy tree on the ground.

Much industry and valuable information is given in the pamphlet before us of the consumption of timber trees in this country, all of which point to an insufficient supply at no very remote date, if some steps are not taken to provide a supply by cultivation. Of this the author says: "One means of averting this calamity is the extensive yearly planting of well-selected forest trees. I have urged the cultivation of catalpa, believing it will give the largest return in the shortest time. Its economic uses are more varied and extensive than any one tree with which I am acquainted." It is to be hoped that railroad companies generally will adopt this recommendation which has been so disinterestedly given. Those who care to get further information on this subject than we have been able to give can get the pamphlet containing it by addressing Mr. E. E. Barney, Dayton, Ohio, and inclosing six cents for postage.

German Railroad Politics.

When some three years ago the Prussian Parliament was asked to authorize the government to transfer the government railroads to the German Empire, which before had had no railroads except those which it obtained with Alsace and Lorraine, this was commonly looked upon as the beginning of an absorption of most or all the lines of Germany by the Empire; but this was not the view taken by many of the members of Parliament and other officials. The then Minister of Commerce of Prussia distinctly repudiated the idea of establishing an exclusively government system. Under this law nothing has been done; but the smaller states of the Empire, apparently alarmed lest their railroad interests should be overshadowed by an imperial system, at once began a policy of enlarging their systems by the absorption of private railroads. Latterly Prussia has been pursuing the same course. Some time ago some difference arose between Prince Bismarck and the Prussian Minister of Commerce, which resulted in the replacement of the latter by Maybach, an old government railroad officer. Since his accession it has not been quite clear what the government railroad policy was, except so far as indicated by numerous requests for authority to acquire private railroads and add them to the Prussian state system. But on the 13th of February last Minister Maybach made a formal speech in which he declared the Prussian policy. He said that the policy of 1876, to transfer the Prussian state railroads to the Empire, had been defeated by the action of the smaller states in absorbing their lines. To understand this, we must bear in mind that the object of the transfer was to give the Imperial Government such power over the whole transportation system of the Empire as to enable it to control the business in all its general features. With the important, long lines of Prussia, it could then have done this pretty well by combining with the private railroads of the adjoining states; but when these adjoining states had absorbed their private railroads, the Empire's ownership of the Prussian state roads would only have enabled it to control transportation in Prussia.

Minister Maybach declared this action of the other states to have prevented the transfer of the Prussian state railroads, and pronounced the present policy of the Prussian government to be the concentration of all the Prussian railroads under its direct management—the absolute state railroad system as opposed to the "mixed system" (part state and part private railroads) that has hitherto prevailed in nearly all the states of Germany, as in Belgium, and recently in Austria and Hungary. Hitherto, since the vote of 1876, granting authority to transfer the Prussian railroads, it is said that there has been less and less tendency in Parliament toward the state railroad principle; but the declaration of the ministry of its position is likely to carry over a certain number of its adherents; and a new Parliament to be elected before any further steps can be taken will, it is thought, be likely to have a majority in favor of the ministerial policy.

The significance of this, as regards the German Empire, lies in the fact that not only is Prussia by far the largest of the states of the Empire, but especially that Prince Bismarck substantially dictates the policy of the administration of both Prussia and the Empire. This strengthens the conviction that the ultimate aim is the concentration of the railroads of the Empire under one imperial management—the carrying out of the state railroad policy to its full extent over an immense territory with vast population and industries, and possessing the largest and perhaps most important railroad system in Europe—an experiment of the very highest importance in the economical history of the world, for

which there is no precedent, and the result of which, therefore, must be looked for with great interest.

It is not likely, however, that the absorption of the roads by the Empire will be completed for many years. It must be remembered that it is not even begun yet. Probably it will not be until the process of acquiring all the Prussian roads has been completed, and in the other states the opposition will doubtless be greater, though it may not have much effect.

It will certainly be an experiment of the highest moment to have all the railroads of a great country like Germany united under one ownership and management. This unity will be there and would be anywhere a tremendous advantage, against which must be set the disadvantage of management by state officials and employees, and the lack of competition to spur managers to the highest energy, enterprise and economy. Should it succeed, however, we may expect the state system to prevail throughout continental Europe. The other countries would not feel safe to have so vast a power as the monopoly of railroad transportation wielded by a neighbor while they had nothing to oppose to it. To a considerable extent the railroads of one country compete with those of another, and there would be no equality in a competition of one railroad of France or Austria against the whole railroad system of the German Empire, and the utter cessation of competition for interior traffic would give immense power for competition for foreign traffic.

The Winter Grain Movement.

The receipts and shipments of grain of all kinds at the eight Northwestern reporting markets—St. Louis, Peoria, Chicago, Milwaukee, Duluth, Detroit, Toledo and Cleveland—and the receipts of the seven Atlantic ports, for the three months from Dec. 1 to March 1, during nearly all of which time lake and canal navigation was closed, have been as follows, in bushels, for the past six years:

Year.	Northwestern Receipts.	Northwestern Shipments.	Atlantic Receipts.
1873-74.....	35,098,000	15,494,686	25,336,321
1874-75.....	30,242,804	9,452,738	19,524,658
1875-76.....	31,594,380	15,138,535	22,550,005
1876-77.....	28,337,187	13,404,025	24,546,607
1877-78.....	33,290,272	21,570,638	43,332,088
1878-79.....	41,414,914	19,180,008	42,219,402

Compared with last year, the Northwestern markets' receipts have been 24½ per cent. greater, the Northwestern markets' shipments 11 per cent. less, and the receipts at Atlantic ports 2.7 per cent. less. Our comparison at the end of January showed an increase of 26½ per cent. in Northwestern receipts, a decrease of 8 per cent. in Northwestern shipments, and a decrease of 12½ per cent. in Atlantic receipts. If the latter keep as they have been for a few weeks, the receipts, down to the opening of navigation, will be as large this winter as last. The course of the traffic has been much the same as last winter, becoming largest after January, except that this year a larger quantity has been received and stored at the Northwestern markets, evidently awaiting the opening of navigation. Even in the last week of February, when rail rates were lowest, the receipts at these markets were nearly twice as great as the shipments thence. Last year the receipts of the three months were 11,719,000 bushels, or 54 per cent. more than the shipments; this year the receipts have been 22,335,000 bushels, or 117 per cent. more than the shipments. The difference is probably due to two causes: first, the rail rates, low as they have been, have still been higher this winter than last on the average; and, second, the demand has been much less pressing and the prices much lower this winter.

This winter, as last, most of the receipts at Atlantic ports have come from other points than the eight great Northwestern markets—chiefly, doubtless, from interior points, where or near where the farmer delivers the grain to the railroads. We know that part at least—probably a considerable part—of the shipments of the eight great markets are made to interior Eastern points, and not all to the Atlantic markets; yet if they all had gone to the latter markets, they would not have equaled half their receipts. The difference between the Northwestern shipments and the Atlantic receipts for the three months each year has been:

Year.	Bushels.	Year.	Bushels.
1873-74.....	9,841,655	1876-77.....	11,142,582
1874-75.....	10,071,920	1877-78.....	21,821,154
1875-76.....	7,411,470	1878-79.....	23,039,454

The extent to which the transfers at these markets are eliminated in the course of the grain movement is one of the most striking features in the recent history of the business. The shipments from the Northwestern markets have increased, it is true, but not nearly in so great a proportion as the receipts at Atlantic ports, as is shown by the proportion which the former have borne to the latter in successive years, which has been, beginning with 1873-74, 61, 48½, 67, 54½, 40½, and 45½ per cent.

The distribution of the receipts of the three winter months among the several Atlantic ports has been as follows for three years:

Grain Receipt at Atlantic Ports for the three months from Dec. 1 to March 1.

	1878-79.	1877-78.	1876-77.
New York.....	17,379,704	17,872,293	17,786,992
Boston.....	3,724,301	3,305,793	3,377,404
Portland.....	645,591	935,960	464,109
Montreal.....	57,867	51,055	70,215
Philadelphia.....	7,736,850	8,116,410	4,420,200
Baltimore.....	9,047,400	8,790,500	7,460,044
New Orleans.....	3,084,549	4,260,477	1,156,983
Total.....	42,270,262	43,392,488	44,775,817

The changes since last year are remarkably small, especially at the three leading markets. New York has had almost exactly the same proportion this year as last, notwithstanding the snow blockade; Philadelphia has lost a trifle, and Baltimore has gained considerable at the expense of

New Orleans. Compared with 1876-77, the changes are considerable—a large increase in the proportion of New York and a decrease almost as large in that of Baltimore; a large increase at New Orleans and a decrease at Boston.

Comparing Philadelphia and Baltimore taken together with New York the percentages are:

	1878-79.	1877-78.	1876-77.
New York.....	41.1	41.2	31.4
Philadelphia and Baltimore.....	41.1	38.9	38.1
The three cities.....	82.2	80.1	69.5

Philadelphia and Baltimore together have this year received almost exactly as much as New York. In 1876-77 they received a good deal more, 1877-78 somewhat less.

Comparing New York and Boston with Philadelphia and Baltimore, we have:

	1878-79.	1877-78.	1876-77.
New York and Boston.....	50.0	49.0	45.0
Philadelphia and Baltimore.....	41.1	38.9	38.1
The four cities.....	91.1	87.9	83.1

The four cities together, therefore, have been increasing their proportion of the total throughout the three years. About a sixth of it went to other places two winters ago, only an eleventh this winter.

Comparing the quantities received, Boston, Montreal and Baltimore have had more this year than last, all the other places less. The differences, however, are all small.

Record of New Railroad Construction.

This number of the *Railroad Gazette* contains information of the laying of track on new railroads as follows:

Southern Pacific.—Extended from Mohawk Gap, Arizona, eastward 36 miles.

Houston, East & West Texas.—Extended from Round Prairie, Tex., eastward to Sheppard, 8 miles. It is of 3-ft. gauge.

This is a total of 44 miles of new road, making 141 miles reported thus far this year.

THE SLEEPING-CAR INVESTIGATING COMMITTEE of the Illinois Legislature which went to Chicago to investigate the Pullman Company submitted four different reports. Three members signed a report in which many figures were given from the company's last report, and others showing interesting details of the company's business on the four most important roads in Illinois on which it has cars. Among these we find that the average number of passengers per car per trip on the Chicago & Alton road was 12.33, the gross earnings per passenger \$1.73, expenses, \$1.33, and the net earnings 40 cents, while per car per trip the gross earnings were \$21.34, expenses \$16.40, and net earnings \$4.94. The net earnings on this line were equivalent to 7.94 per cent. on the capital invested. On the four roads taken together (Chicago & Alton, Chicago & Northwestern, Chicago, Burlington & Quincy and Illinois Central), the net earnings were 7.9 per cent. on the investment and the average number of passengers per car per trip 12.55. This committee reported that the number of stockholders in the company was 1,042, of whom 354 were women and 63 guardians or trustees. It reported the company's claim to be exempt from legislative regulation on the ground that it was not a common carrier, and that its receipts are from the rental of an invention on which it holds letters patent, which authorize it to fix its own price for the patented article, and it said that the decisions shown them seemed to sustain this view. These members of the committee "deem it inadvisable to recommend any legislation on the subject." One member of the committee reported that the investigation was improperly made, and that he took no part in it. Another stated a few facts learned from the company, among which was this, that legislation was then pending in Wisconsin, Ohio and Missouri intended to reduce sleeping-car charges, and that the pay of employees varied from \$10 a month to porters, with what may be given them for blacking boots, to \$900 a month to the President, but this committeeman did not feel at liberty to make any recommendations. Still another report was made, which suggested that plainer cars with three tiers of berths might be run at lower rates, and said that the Pullman Company is about to experiment with a line of such cars on the Chicago, Burlington & Quincy Railroad. If this should not succeed, it suggested that a lower rate should be charged for the upper berth of the existing cars.

THE WINTER PACKING SEASON closed with February, but detailed statistics are not yet published. But the number of hogs packed in the Northwest from Nov. 1 to Feb. 26 is reported to have been 7,253,812 this year, against 6,391,621 last year, and 5,093,535 in the season of 1876-77. This year's packing shows an increase of 13½ per cent. over 1877-78 and of 42½ per cent. over 1876-77. The proportions of the whole number packed at the six leading points have been:

	1878-79.	1877-78.	1876-77.
Chicago.....	38.1	39.3	31.8
St. Louis.....	8.6	7.8	8.1
Cincinnati.....	8.4	9.9	10.3
Indianapolis.....	6.4	4.2	5.8
Milwaukee.....	6.1	5.5	4.4
Louisville.....	2.6	4.4	4.2
Other places.....	29.8	29.9	35.4

The result is remarkable as putting St. Louis for the first time ahead of Cincinnati, which is still commonly supposed to be the head-quarters of pork-packing, though it is eighteen years since it packed as many as Chicago, and in this last season it did not pack a quarter as many. The greatest progress, however, has not been made at Chicago. The increase in the number packed there, comparing with last year, was 12.7 per cent., but at Indianapolis it was 72 per cent., at Milwaukee 26 per cent., and at St. Louis 25 per cent. There was a large decrease at Louisville and a small one at Cincinnati.

During these four months of the packing season the ex-

ports of hog products from the United States have been 250,236 tons this year, against 204,349 last, an increase of 45,887 tons, or 22½ per cent. These exports alone would have made about 20,000 modern car-loads, which, without engines, would have made a train 125 miles long. But the number of hogs packed in that time must have weighed about 1,100,000 tons, or about 90,000 car-loads, and, as live hogs, filled a much greater number of cars.

THE PENNSYLVANIA RAILROAD MEETING last Tuesday was noticeable again as following English precedents and giving vent to complaints and inquiries, none of which seems to have been of much importance except a charge against Mr. Anspach, one of the directors elected by the city of Philadelphia, of having received several thousand dollars for negotiating a purchase of a tract of land for the company several years ago. It appeared that he had received money in connection with the purchase, and that recently he has refunded it—been compelled to refund it, some say. It certainly has a very bad look, but it is the character of the transaction and not the amount involved that makes it noticeable. A good deal of the grumbling was very wild. We notice that though the stockholders seem to have adopted the English practice, the President has not. In England he would have answered inquiries and complaints on the spot. This is almost the only railroad meeting in this country at which there is any approach to a discussion, and we like to see the practice encouraged, but it is not likely to spread much unless the Pennsylvania stockholders use their opportunities more intelligently than they have done hitherto. In most cases there will be a good deal of foolishness uttered on these occasions, but this can be borne if we get in addition a little sense—some pertinent inquiry drawing out a needed explanation, or the like.

THE UNITED STATES ROLLING-STOCK COMPANY, it will be remembered, was founded chiefly for the purpose of supplying the Atlantic & Great Western Railroad Company with rolling-stock under a contract made by the directors of the two companies, several of the directors of the railroad company being also directors of the rolling-stock company. The railroad company failing to pay the rental agreed upon under this contract, which was certainly very high, suit was brought by the rolling-stock company. One of the defenses of the railroad company was that the contract was invalid, the directors of the railroad company having virtually contracted with themselves when they contracted with the rolling-stock company. This was held to be a good defense in the Ohio court in which the case was tried, and its decision against the validity of the contract was afterward confirmed by the Ohio Supreme Court. We learn now, however, that on a petition for a rehearing of the case the Supreme Court has reconsidered its action and ordered a new trial. This order has just been made, and on what particular grounds it was based, we are not able to say this week, but it is assumed that it is because the original decision of the invalidity of the contract on account of the same men being directors in both corporations parties to it is finally held not to have been justified.

FEBRUARY EARNINGS have been reported so far by 21 roads, 13 of which show an increase over last year, but the amount of decreases very nearly balances the increases. The lines northwest of Chicago show large decreases, as before since harvest; the lines west of the Missouri large increases. There are great fluctuations, decreases and increases being large in many cases.

NEW PUBLICATIONS.

Proceedings of the Engineers' Club of Philadelphia.—The Philadelphia Engineers' Club is a young institution, and seems to have all the vigor of youth. It has now begun to publish its *Proceedings* in a periodical, much in the form of the *Transactions* of the American Society of Civil Engineers. The first number, just issued, contains the principal papers that have been read before the Club since its organization a year ago last December. These do not make up a very large bulk, the papers being mostly short, and the notes of discussions being much abridged. Hereafter it is proposed to issue a number when material enough has accumulated to make a thin pamphlet, which it is thought will be about once in two months.

There is a goodly number of engineers attached to the Club—naturally, it being in Philadelphia—of notable ability, whose contributions to the literature of their profession will deserve the record which these *Proceedings* will give them.

Construction of Railroads in Mexico.

Hon. William M. Evarts, the Secretary of State, to whom was referred a resolution of the Senate of Feb. 20, requesting the President, if in his judgment compatible with the public interests, to communicate to that body "a copy of any dispatches, not heretofore communicated, which have been recently received by the Secretary of State from the United States minister in Mexico, relating to concessions for railroads in that country," has laid before the President the accompanying copy of a dispatch from Mr. John W. Foster, with its accompaniments, in reference to the subject of the resolution.

MR. FOSTER TO MR. EVARTS.

LEGATION OF THE UNITED STATES,
MEXICO, Jan. 28, 1879.

SIR: I am constantly in receipt of inquiries from citizens of the United States as to the state of Mexican legislation regarding the construction of railroads, the sentiment of the people and present government of this country upon a railroad connection with the United States, and the probability and possibility of the latter rendering any aid by way of subsidy to such construction.

The Hon. Matias Romero, the Mexican Minister of the Treasury, is now engaged, by direction of the President, in publishing, in the government *Official Gazette*, a series of lengthy articles upon the financial, commercial and political condition of this country, which is designed, as he states, to be a vindication before the civilized world of its disposition and ability to develop its great natural resources, and invite foreign capital to aid in this work. A large part of his article has thus far been devoted to the question of railroads. But as it is only a partial and imperfect statement of the present condition of this subject, designed for circulation in the United States, and, in view of the repeated inquiries made to me as referred to above, I have thought it would be desirable to send to the department a full statement of all the acts of the present government of Mexico, especially connected with foreign interests and concessions, in the hope that the information contained therein may be of some interest and value to our government and its citizens.

1. The first indication given by the present administration of the Mexican government of its sentiments in regard to foreign railroad enterprises and to foreigners is found in the revolutionary "plan" or proclamation of General Porfirio Diaz, dated at Palo Blanco, March 21, 1876. In that proclamation he gives, among others, as reasons for "raising the standard of war against the government of President Lerdo," that the country has been delivered to the English company with the concession of the Vera Cruz Railroad; attacks the Lerdo government for granting a charter, as it alleges, to the same company for a railroad to the city of Leon; states that "it has been agreed to sell the English debt to the United States, which is equivalent to selling the country to the neighboring nation," and charges that the Lerdo government "rob us of our future and sell us to foreigners." This proclamation is herewith transmitted in an extract marked inclosure No. 1.

2. During the progress of the revolution, General Diaz, from his headquarters in Oaxaca, issued a decree dated Sept. 26, 1876, in which he declared "null and without any force and effect" certain specified contracts made by the Lerdo government, and also "any contract which may result in any burden to the nation." After the triumph of his revolution and the occupation by him of this capital, this decree was published in the first issue of the *Official Government Gazette*, and was understood to be in execution of the spirit set forth in the proclamation above referred to. At the time of the overthrow of the Lerdo government, a contract made by the minister of public works with the International Railroad Company of Texas for the construction of a road from this city to the Rio Grande was pending in the Mexican Congress. Upon the publication of said decree of nullification, the representative of said company, Hon. E. L. Plumb, considering that this publication rendered his contract of no effect, withdrew from the country, and the subject was never called up in the new Congress. It is due to the present government, however, to say that it has only in exceptional cases insisted upon the absolute abrogation of the contracts of the late administration, although in some cases it has required material modifications of them. The decree is herewith inclosed (No. 2).

3. The revolutionary proclamation of General Diaz denounced the contract made by President Lerdo with the Central Railway Company to construct a road from this city to Leon. In November, 1874, the Mexican Congress had granted a charter to certain parties for that purpose. A company had been formed, the surveys had been made for a large part of the distance, and the active operations of the construction were being pushed forward with commendable energy, when the revolution broke out and soon spread into the section of country where the work of construction was in progress. The result was that the workmen were in large numbers impressed into the opposing armies, the disturbed condition of that region paralyzed the efforts of the constructors, and the company was compelled to suspend its work. To this embarrassment was added another, to wit, the revolution had so impaired the credit of the country in Europe, where the company was placing its bonds, that it rendered the negotiation at that time impossible.

One of the first acts of the Diaz government, after its accession to power, was to declare, in December, 1877, the charter of this company forfeited, and it proceeded to collect the bond of \$150,000, which the company has given for the faithful fulfillment of its contract. At this juncture, the principal member of the company, Mr. William Barron, a British subject, solicited my good offices in the absence of any diplomatic representative of his own government, to prevent the execution of the harsh measures decreed. My efforts were only partially successful, as the government enforced the forfeiture of the charter, including all the work done upon the road, amounting to about \$80,000, and the payment to the government of \$32,000, which the company had received for the lottery franchise. This subject, with a statement of the reasons of the government for enforcing the forfeiture, was reported in full to the department in my dispatch No. 524, of April 30, 1877, which is made inclosure No. 3, herewith.

4. Soon after the Mexican Railway Company (from Vera Cruz to the city of Mexico) was completed, on the 15th of March, 1873, the executive, with the full authorization of Congress, made a contract with said company, formally entered into by both contracting parties, with mutual concessions and considerations, by which a new tariff of passenger and freight charges was agreed upon, and a settlement or new arrangement of the subsidy due for the construction of the road was made. By the latter, the government agreed to pay to the company \$500,000 annually, for the term of twenty-five years.

At the first session of the Congress elected under the new government of General Diaz, and in execution of the programme marked out in the revolutionary proclamation appended hereto, a committee was appointed to report upon what measures were necessary to be taken in regard to the contract of tariffs of March 15, 1873. At the following session, in October, 1877, the committee submitted its report, and on the 9th of said month a bill or project of law was presented, which was, after observing the usual legislative methods of debate and readings, adopted on the 9th of November, 1877, by the unanimous vote of the Chamber of Deputies, and was sent to the Senate. This bill authorizes the executive to stipulate for a reduction of the tariff under the contract of March 15, 1873, and if no arrangement can be agreed upon with the company, the bill expressly provides for rescinding the contract by legislative act, and sets forth a tariff of freights in view of that contingency. A copy is transmitted herewith, marked No. 4. This bill caused such a feeling of opposition on the part of the more intelligent and liberal of the public men of this country that up to this date the friends of the bill have not been able to procure its passage by the Senate.

Reference has been made to the clause of the contract of March 15, 1873, which stipulates that the Mexican government shall pay to the railroad company, in lieu of the subsidy due at the completion of the road, an annual sum of \$500,000. The government of Mr. Lerdo was able to make this yearly payment until the revolution of General Diaz broke out in 1876, when, owing to the state of war into which almost the entire country was thrown, occasioning a

disorganization of the finances and a large increase in the expenses, the payment of the subsidy was suspended about the 1st of March, 1876. This suspension has been continued during the period of the present administration, for more than two years and a half, notwithstanding the revolution terminated successfully more than two years ago, and in spite of the constant and persistent efforts of the company to obtain the contracted payments. The amount due the company from the government on this account at the end of last year was, say, \$1,800,000.

5. Thus far I have referred to the executive and legislative acts as to railroad matters affected by the Diaz revolution. I come now to speak of the conduct observed in reference to new railroad projects.

On the 12th of November, 1877, the minister of public works celebrated a contract with William J. Palmer & Co., of the United States, for a system of railroads from the city of Mexico to the Pacific Ocean, and to the frontier of the United States, to connect with the railroad system of our country. A translation of the material articles and an abstract of the others of said contract or charter are made a part of inclosure No. 5.

It will be noticed that this contract provides that the line from this city to the Pacific shall be first commenced, and that the line to the Rio Grande shall not be commenced until that to the Pacific is completed; and also that the line to the American frontier shall be commenced, not on the Rio Grande, but at the point on the line to the Pacific where the frontier branch leaves the Pacific line. The contract also stipulates that the company and all persons who may take part in it as bondholders, employees, or in any other character, "shall be considered as Mexicans in everything connected with the enterprise;" they cannot allege their foreign nationality, nor can they appeal to their government or diplomatic representative "even in case of a denial of justice." These latter conditions as to nationality have been inserted in all railroad contracts proposed by the Mexican government for years past, and, in the opinion of American capitalists, present a serious impediment to the investment of foreign capital in Mexican railways. This contract was submitted to the Mexican Congress for its approval in November, 1877. No definite action was had, and it came up again in the session of April-May, 1878, when a strong opposition was manifested to it, in the course of which one of the leading members of the majority of that body, the Hon. Alfredo Chavero, made a notable speech, which will be referred to hereafter, opposing all railroad connection with the United States as dangerous to the independence of the country. While the contract was pending a law was passed authorizing the executive to contract with the governors of states for the construction of railroads within their respective state limits. Under this law the federal executive has made thirteen contracts for as many independent roads or branches, which form a serious impediment to the carrying out of any general system of trunk lines. The friends of the Palmer contract urged its passage, but in lieu and as a modification thereof, the committees of industry, to whom the general subject belongs, introduced a bill on the last working-day of the session, which was passed immediately, by a vote of 115 to 12, authorizing the executive to contract for a railroad from the city of Mexico to the Pacific Ocean only, thus defeating the Palmer contract. This latter bill, of which I transmit a translation as a part of inclosure No. 5, was sent to the Senate, but has not as yet received any definite action of that body.

The Palmer contract was again brought up, with the approval of the Minister of Public Works, in the last Congress, which met in September last. But all the efforts of the friends of a railroad connection with the United States proved fruitless, as the joint committees to whom the contract was referred did not report till the last working-day of the session, Dec. 14, 1878, and then only obtained leave to submit their report in writing, which has just within the last few days been made public. I send a translation of those parts of the report of interest to the subject of the present dispatch, as a part of inclosure No. 5.

It will be seen that this report, which is a unanimous one on the part of the joint committees, asserts: (1st) that the most important railroad for Mexico is an interoceanic one within Mexican territory; (2d) that the Palmer contract should be amended so as to require the road to the Pacific to be the main trunk line, to avoid being subjugated to the monopoly of an American company, to the serious danger of the national independence; (3d) that the contract should be so amended as to require the company not to construct lines parallel or in competition with the state railroads without the consent of the latter; and (4th) that the railroad toward the United States should not make a connection with the American system, but should be required to go to Tampico or Matamoros, and thus the communication with the United States would be by water. The report concludes that the objects had in view in making these amendments have been to free Mexico from being made a colony or kind of dependency of the United States and to prevent the two countries from being united by iron bands, which latter would cause only the scorn and indignation of future generations.

Such is the past and present state of the Palmer contract or charter, which has been the leading American enterprise before the Congress of the Diaz government.

6. On the 12th of October, 1877, the Minister of Public Works made a contract or charter with Messrs. Ferguson & Lyman, representing American interests, for the construction of a railroad from the Mexican seaport of Guaymas, in the state of Sonora, to the American frontier, to connect with the Southern Pacific road in Arizona. A translation of the material parts of said contract is inclosed (No. 6). This contract was submitted to Congress for approval in October, 1877, but no definite action being had, it went over to the session in April-May, 1878. Here it encountered much the same opposition and fate as that of the Palmer contract just stated, and it failed to pass that body at that or the subsequent and last session, ending Dec. 15, 1878.

I have been informed that Messrs. Ferguson & Lyman have abandoned the hope of securing the approval of Congress to the Sonora charter, and are now seeking to revive, through the Minister of Public Works, an old charter granted to David Boyle Blair in 1875, which had lapsed from the disinclination of capitalists to accept his proposals.

7. The last contract made by the executive with American parties was that for the construction of a railroad across the Isthmus of Tehuantepec, in favor of Mr. H. H. Hall, in representation of a New York company, which contract was signed on the 31st of October, 1878, and immediately submitted to Congress, and of which a partial translation is inclosed (No. 7). This charter, although it was not open to the objections urged against the lines leading to the American frontier, met with such opposition that it failed to pass Congress, and is still pending in that body. A considerable majority of the chamber of deputies seemed to favor the measure, and the company hope to secure its passage at the next session.

8. On the 6th of December, 1878, the Mexican Minister of Finance signed and sent to Congress a conditional agreement with certain parties, having in view a new funding of the public debt and the construction of a railroad from this city to the Pacific Ocean, with branches. The instrument should more properly be termed bases for a future

contract, as it in express terms binds no one but the parties who may hereafter enter into the arrangement. I have already transmitted a translation of the agreement with my dispatch No. 855, of Dec. 10 last, with full explanation of its contemplated objects. As it has met with and will encounter serious opposition in this country, and as there appears almost no probability of its realization, I do not think it worth while to do more in this connection than refer to my previous dispatch on the subject.

9. One phase of the railroad connection between Mexico and the United States is illustrated by the sentiments developed in this country on account of a series of resolutions introduced into the Senate of the United States by Senator Morgan on the 8th of May, 1878, of which I inclose a copy herewith (No. 8). These resolutions breathe a most friendly spirit, and were designed to develop a better state of political and commercial relations between the two republics. The last of the series contemplated a "treaty for the protection and encouragement of such citizens of either country as should with the consent of the government of Mexico build and equip a line of railroad from the city of Mexico to the Rio Grande." These resolutions, being published in this city, were denounced by the press as "a proposition to establish a protectorate" over Mexico. I give an extract from the comments of the oldest and one of the most prudent and influential newspapers in this country, the *Siglo XIX*, in inclosure No. 8.

The same subject has been within a few days past referred to in an official paper, prepared by order of President Diaz, by Señor Romero, Minister of the Treasury, and published in the official government newspaper. Señor Romero states that Mexico would not consent to celebrate with any government such a treaty in regard to railroads as that proposed by Senator Morgan, and least of all with the United States. (See inclosure No. 8.)*

10. One of the leading speeches delivered in Congress in May last in opposition to the Palmer contract was that made by Hon. Alfredo Chavero, a gentleman of long experience in public life, of education and intelligence, and one of the most prominent and influential members of the ruling party in Congress. This speech, while it attacks the financial responsibility of the company, maintains that "it is very poor policy, very injudicious to establish within our country a powerful American company;" that "we should always fear the United States;" and that the contract ought to be rejected, in order to avoid "a danger for the independence and the future of the country." The speech is inclosed, marked No. 9. It is similar in sentiment to those which have frequently been delivered in Congress of late years by some of the most distinguished statesmen whenever the question of railroad charters to the United States has been under consideration. Additional significance has been given to this speech from the fact that at the opening of the next Congress, newly elected in September last, Señor Chavero was chosen Speaker of the Chamber of Deputies; and in reply to the opening address of the President of the Republic, in the presence of the diplomatic representatives as invited guests, in replying officially to the President's address, he referred to the action of the previous Congress in regard to the Palmer contract and stated that subsequent events had shown the wisdom of that action.

11. To complete the foregoing statement it is proper to add an exhibit of the present financial condition of Mexico, in order to form an estimate of its ability to pay subsidies for railroad construction. This statement is appended, marked inclosure No. 10. From this it appears that the government owes a foreign debt of over \$130,000,000; that it has pledged the entire available receipts of the custom-houses and repudiated a part of them, to the extent of 60 per cent., to secure the payment of the interest and the redemption of the principal of that debt, but for nearly a generation past has not been able, owing to its financial necessities, to make effective those pledges or pay the interest; that the present receipts of the federal treasury are only 70 per cent. of the expenses; that the receipts are decreasing and the expenses are increasing; that it has suspended for nearly three years its subsidy to the only completed line of railroad in the country, and that it has a large domestic or interior debt of unknown amount.

The foregoing statement is submitted in the hope that it may in some degree furnish the information asked of this legation in regard to Mexican railroads and railroad charters and construction.

I am, sir, etc., JOHN W. FOSTER.
[Inclosures.]

1. Gen. Diaz's revolutionary plan.
2. Decree annulling contracts of the Lerdo government.
3. Forfeiture of Central Railroad charter.
4. Bill modifying tariffs of Mexican Railroad Company.
5. Palmer contract; bill for interoceanic road, and report of joint committees of Congress.
6. The Sonora charter.
7. The Tehuantepec charter.
8. Senator Morgan's resolutions; comments of Mexican press, and opinion of Mexican Government.
9. Chavero's speech.
10. Financial statement of Mexican treasury.

*[Extract from the reply of Sr. Romero, Minister of finance, to Mr. Foster's letter to Chicago manufacturers, prepared by order of the President.]

100. * * * * Mexico could not celebrate a treaty with the United States nor with any other power by means of which she would consent that a foreign government might guarantee the fulfillment of a private contract made by Mexico for the construction of a work within her own territory. This would be equivalent to recognizing beforehand, and in a solemn and formal manner, her impotency to comply with the obligations which she might contract; and a nation which should commence by recognizing this impotency, would merit no respect whatever from the civilized world, and for its own decorum ought to abstain from celebrating a contract which it itself knows it could not fulfill unless stimulated and obliged by the nation whose guarantee it should accept for the fulfillment of the agreement.

101. If the events be considered which have occurred between Mexico and the United States, concerning which notice will be taken further on, it will not appear strange, but on the contrary very natural, that Mexico has with the United States greater difficulties even than those encountered in treating with any other power for the celebration of a treaty of this kind.

General Railroad News.

MEETINGS AND ANNOUNCEMENTS.

Meetings.

Meetings will be held as follows:
Woodruff Sleeping & Parlor Coach Co., annual meeting, at the office in Pittsburgh, March 18, at 10 a. m.
Allegheny Valley, annual meeting, at the office in Pittsburgh, April 8, at 11 a. m.

Railroad Conventions.

The *General Passenger & Ticket Agents' Association* will hold its regular semi-annual meeting at the Metropolitan Hotel, New York, March 14.
The *Roadmasters' Association* will meet in Boston, March 25, to complete its permanent organization.

The *General Time Convention* will meet at the Galt House, Louisville, April 8.

The *Southern Time Convention* will meet at the Continental Hotel, Philadelphia, April 18.

The *Car Accountants' Association* will hold its annual convention at the Grand Pacific Hotel, Chicago, April 23.

Dividends.

Dividends have been declared as follows:
New York Central & Hudson River, 2 per cent., quarterly payable April 15. Transfer books close March 15.

Lehigh Valley, 1 per cent., quarterly, payable April 15.
Dubuque & Sioux City, 2 per cent., payable April 15. The road is leased to the Illinois Central.

Western Union Telegraph, 1½ per cent., quarterly, payable April 15.

Mail Service Extensions.

Mail service has been ordered over railroad lines as follows:

Chicago, Burlington & Quincy, Chariton & Indianola Branch, service extended from Lacona, Ia., to Indianola, 19.25 miles, from March 15.

Foreclosure Sales.

The *Cherokee Railroad* was sold in Cartersville, Ga., March 4, and bought for \$22,500 by the Cherokee Iron Works, which own a large property on the line. This is a re-sale, the road having been sold once before, Nov. 5, 1878. It is 23 miles long, from Cartersville, Ga., to Rockmart. It is said that the purchasers will extend it some 20 miles, to Pryor on the Selma, Rome & Dalton road.

The *Indiana North & South road* will be sold in Indianapolis, April 8, under the decree of foreclosure lately granted. The road is 15 miles long, from Attica, Ind., to Veedsburg; the bonds and accrued interest amount to \$825,000.

The *Lafayette, Muncie & Bloomington road* will be sold in Lafayette, Ind., April 3, under the decree of foreclosure lately granted by the United States Circuit Court. The whole road will be sold together as one property, with all the equipment, etc. It is 120 miles long, from Muncie, Ind., through Lafayette to the Illinois line. There are \$666,000 bonds secured on the 37 miles of the Western Division; bonds have also been issued on the Eastern Division of 83 miles, but the amount is not reported.

ELECTIONS AND APPOINTMENTS.

Alexandria & Fredericksburg.—The office of Assistant General Freight Agent has been abolished, and its duties will be performed by the General Freight Agent.

American Iron & Steel Association.—The Board of Managers, at a meeting held in Philadelphia, March 6, elected the following officers for the ensuing year: President, Daniel J. Morrell, Johnstown, Pa.; Vice-Presidents, Abram S. Hewitt, New York; Samuel M. Felton, Philadelphia; B. F. Jones, James Park, Jr., Pittsburgh; Secretary, James M. Swank, Philadelphia; Treasurer, Charles Wheeler.

Baltimore & Potomac.—The office of Assistant General Freight Agent has been abolished, and its duties will be performed by the General Freight Agent.

Belleville & North Hastings.—At a recent meeting of the board John McDougall, of Montreal, was chosen a director and President, in place of Mr. Bowell, resigned. E. O. Bickford was chosen General Manager.

Burlington, Cedar Rapids & Northern.—At the annual meeting in Burlington, Ia., Feb. 25, the following directors (one-third of the board) were re-elected: Charles Bard, Frederick Butterfield, W. S. Nichols, W. S. Opdyke.

Chautauque Lake.—Mr. C. J. Hepburn has been appointed Superintendent. He is also Superintendent of the Pittsburgh, Titusville & Buffalo.

Chicago, Clinton, Dubuque & Minnesota.—At the annual meeting in Dubuque, Ia., Feb. 28, the following directors were chosen: Sidney Bartlett, F. Bartlett, J. A. Burnham, J. N. Denison, James F. Joy, A. Hardy, Nathaniel Thayer, Jr.

Chicago & Iowa.—At the annual meeting in Chicago recently the following directors were chosen: J. K. Barry, F. E. Hinckley, G. W. Kretzinger, B. T. Lewis, Joseph Rising, B. P. Shumway, D. B. Waterman.

Chicago, Rockford & Northern.—At the annual meeting recently, the following directors (one-third of the board) were chosen: B. T. Lewis, B. P. Shumway, D. B. Waterman.

Chicago & Western Michigan.—Mr. H. L. Brown has been appointed General Freight Agent, in place of L. W. Campbell, resigned. Mr. Brown has been Assistant General Freight Agent for some time.

Connecticut Railroad Commission.—The Connecticut Senate has unanimously confirmed the Governor's nomination of Gen. Francis A. Walker as Railroad Commissioner for three years.

Fall River, Warren & Providence.—At the annual meeting in Warren, R. I., March 10, the following directors were chosen: Thomas J. Borden, John S. Brayton, Charles F. Choate, Royal W. Turner, E. W. Willard, E. N. Winslow. The road is controlled by the Old Colony.

Grand Rapids & Indiana.—At the annual meeting in Grand Rapids, Mich., March 5, the following directors were chosen: W. O. Hughart, H. J. Hollister, W. R. Shelby, Grand Rapids, Mich.; J. G. Wait, Sturgis, Mich.; S. S. Cobb, Kalamazoo, Mich.; F. H. Hoagland, Franklin P. Randall, Ft. Wayne, Ind.; J. N. McCullough, Thomas D. Messler, Wm. Thaw, Pittsburgh; George B. Roberts, Thomas A. Scott, Philadelphia; Robert B. Potter, New York. Messrs. Shelby and Cobb are new directors, replacing Mancel Talcott, deceased, and John P. Green. The board re-elected W. O. Hughart President; W. R. Shelby, Vice-President and Treasurer; J. H. P. Hughart, Secretary.

Housatonic.—The board has re-elected William H. Barnum President; David S. Draper, Vice-President; Charles K. Averill, Secretary and Treasurer.

Kansas Pacific.—At the annual meeting, March 12, the following directors were chosen: J. P. Usher, Lawrence, Kan.; G. M. Dodge, Council Bluffs, Ia.; D. M. Edgerton, C. S. Greeley, St. Louis; F. L. Ames, Boston; Jay Gould, Sidney Dillon, Russell Sage, Addison Canham, James R. Keene, James M. Ham, New York. All are new directors except Messrs. Usher, Edgerton and Greeley, the new men being all connected with the Union Pacific. The board elected Sidney Dillon President; D. M. Edgerton, Vice-President; A. H. Calef, Secretary and Treasurer.

Missouri Pacific.—The directors chosen at the annual meeting last week were: J. L. Stephens, Booneville, Mo.; D. K. Ferguson, D. R. Garrison, Oliver Garrison, W. M. Samuel, St. Louis; A. M. Billings, Chicago; F. R. Baby, George J. Forrest, Cornelius K. Garrison, W. R. Garrison, J. P. Kennedy, Russell Sage, Andrew V. Stout, New York.

Northern Central.—The offices of the Assistant General Freight Agents of the Baltimore Division, and of the Susquehanna, Shamokin, Elmira & Canandaigua divisions have been abolished. The General Freight Agent will take direct charge of all matters pertaining to the freight business.

Port Huron & Northwestern.—The following officers have been elected: President, Henry Howard; Vice-Presidents, J. P. Sanborn, C. A. Ward; Secretary and Treasurer, F. Wells; Attorney, C. R. Brown.

Quincy, Missouri & Pacific.—At the annual meeting in West Quincy, Mo., March 5, the following directors were chosen: E. V. Wilson, Edina, Mo.; S. Boynton, Greencastle, Mo.; J. M. DeFrance, Kirksville, Mo.; C. H. Bull, Amos Green, W. B. Larkworthy, F. W. Menke, S. P. Mikesell, E. M. Miller, Henry Root, J. F. Sawyer, Hugh Smith, John Wheeler, Quincy, Ill.

St. Louis, Kansas City & Northern.—The following directors were chosen at the annual meeting last week: Don Catlin, James F. How, B. W. Lewis, Jr., John Jackson, J. R. Lionberger, W. M. Speer, J. S. Walsh, St. Louis; W. R. Garrison, Solon Humphreys, J. A. Jamieson, George J. Seney, New York. Messrs. Catlin, Lionberger, Walsh and Seney are new directors, succeeding J. A. Scudder, J. H. Beach, S. B. Parsons and C. P. Burnham. The old officers were re-elected, as noted last week.

St. Louis & San Francisco.—At the annual meeting in St. Louis, last week, the following directors were chosen: O. Bailey, J. F. Baker, St. Louis; W. F. Buckley, F. Butterfield, J. D. Fish, C. C. Howard, C. Littlefield, J. C. Post, J. Seligman, E. J. Seligman, New York; George S. Curtis, Francis B. Hayes, W. H. West, Boston. The new directors are Messrs. Bailey, Fish, Howard, Littlefield, Post, E. J. Seligman and Curtis, who succeed Samuel Hays, S. M. Seelye, Andrew Peirce, T. T. Buckley, George F. Stone, J. P. Robinson and C. J. Bergen. Messrs. Littlefield and Curtis were directors in 1877.

Southern Minnesota.—The following circular from President Van Horne is dated Feb. 15:

"Mr. P. M. Myers has been appointed General Manager. He will have entire charge of the affairs of the Company in the West. All communications relating to the general business of the road should be addressed to him at La Crosse, Wis."

Troy & Greenfield.—It is understood that Mr. G. Clinton Gardner has accepted the position of Manager of this road, which includes the Hoosac Tunnel, and that he has tendered his resignation of his position as General Superintendent of the Pennsylvania Railroad Division of the Pennsylvania Railroad.

PERSONAL.

—Gen. T. T. Eckert has resigned his position as President of the Atlantic & Pacific Telegraph Company.

—The *Buffalo Commercial Advertiser* says: "Mr. James H. Small, for some years the Superintendent of the street railways in this city, and for the last three years the Managing Director of the Tramway Company in Glasgow, Scotland, has been elected recently Managing Director of the London Tramways Company. He is now at the head of two of the largest companies of this kind in the world."

—Probably the oldest railroad director in the United States is Mr. Benjamin Fish, of Trenton, N. J., who is now in his 94th year, and is still an active, and, for his great age, a vigorous man. Sixty-six years ago he was engaged in the business of transporting freight between New York and Philadelphia by sloop and wagon, and during the war of 1812 had some heavy government transportation contracts. He was one of the original incorporators of the Camden & Amboy Company, was chosen a member of its first board of directors in 1830, and has every year been re-elected a director of that company or of its successor, the United New Jersey. He has for years been the only survivor of that original board, which consisted of Abraham Browning, Robert L. Stevens, Edwin A. Stevens, Wm. McKnight, Wm. J. Watson, Jeremiah H. Sloan and Benjamin Fish—all men of mark in their day. For many years Mr. Fish took an active part in the management of the road, and in the financial affairs of the company, which is one of the very few whose original stock was never lost, and which never defaulted in any of its interest or rental payments.

—Mr. Wm. Gawne, formerly a large contractor, died at Oneida, N. Y., March 10. He was born in the Isle of Man, and came to this country in 1837, and some ten years later had large contracts on the New York & Harlem and other roads. He retired from the contracting business many years ago, and settled down on his farm near Oneida.

—Mr. Benjamin F. Patrick, late General Ticket Agent of the Eastern Railroad, has been discharged from bail, the company declining to press the charge against him. It is said that he has made good the deficiency in his accounts. Mr. Patrick is an old passenger man and in many respects an unusually accomplished one. He has had habits which have almost always prevented his holding any place of importance long, but no act of this kind was ever suspected of him before, we believe. Usually he has kept the good will of those who felt forced to discharge him.

TRAFFIC AND EARNINGS.

Cotton.

Receipts at shipping ports for the week ending March 7 and the crop year from Sept. 1 to that date are reported as follows, in bales, by the *Commercial and Financial Chronicle*:

	1879.	1878.	1877.	1876.	1875.
Week.....	83,286	90,947	50,742	78,380	62,282
Crop year.....	3,919,830	3,670,001	3,623,749	3,569,522	3,052,782

The exports for the same periods were:

	1879.	1878.	Increase.	P. c.
Week.....	134,323	100,994	33,329	33.2
Crop year.....	2,584,024	2,322,638	261,386	10.8

For the half-year ending with September (within which usually three-fourths or more of the crop is marketed), the receipts at each market for two years and the exports this year have been:

	Receipts—				Exports—	
	1878-9.		1877-8.		1878-9.	
	Bales.	P. c	Bales.	P. c.	Bales.	P. c.
New Orleans.....	905,323	26.0	1,192,160	32.5	774,655	31.6
Mobile.....	324,096	8.4	338,625	10.0	85,256	3.5
Charleston.....	484,377	12.6	412,828	11.5	331,439	13.5
Savannah.....	644,143	16.8	514,945	14.4	381,015	15.6
Galveston.....	504,541	13.1	386,985	10.8	273,729	11.2
New York.....	120,834	3.1	81,311	2.3	208,922	8.5
Florida.....	47,441	1.2	12,208	0.3	12,263	0.5
North Caro.....	123,095	3.2	123,649	3.5	63,456	2.6
Norfolk.....	461,377	12.0	417,227	11.6	159,001	6.5
Other.....	130,467	3.6	109,116	3.1	150,405	6.2

In receipts New Orleans has not nearly recovered its last year's position. The places which have gained (proportions)

are Charleston, Savannah, Galveston, Norfolk and the places of small receipts. The largest gains are at Savannah and Galveston.

Railroad Earnings.

Earnings for various periods are reported as follows:

Year ending Dec. 31:	1878.	1877.	Inc. or Dec.	P. c.
Camden & Atlantic...	\$399,061	\$477,483	D. \$78,422	16.4
Net earnings.....	121,213	177,042	D. 55,829	31.5
Clev. Col. C. & Ind.	3,528,714	3,434,356	I. 94,358	2.7
Net earnings.....	707,889	488,779	I. 219,101	44.8
Grand Rapids & Ind.	1,200,629	1,097,107	I. 103,522	9.4
Indianapolis & St. Louis, Indianapolis Division.....	418,945	.....	.....	.....
Net earnings.....	93,876	.....	.....	.....
I. & St. L., St. Louis Division.....	928,301	.....	.....	.....
Net earnings.....	220,027	.....	.....	.....
Ten months ending Jan. 31:	1878-79.	1877-78.		
Ogdensburg & Lake Champlain.....	\$436,169	\$547,682	D. \$111,503	20.4
Net earnings.....	93,552	237,206	D. 143,657	60.6
Two months ending Feb. 28:	1878.	1877.		
Atchison, Topeka & Santa Fe.....	\$695,000	\$359,483	I. \$335,517	93.3
Bur. Cedar Rapids & Northern.....	214,030	312,008	D. 97,969	31.3
Central Pacific.....	2,236,000	2,091,516	I. 144,484	6.9
Chicago & Alton.....	656,048	601,259	I. 54,789	9.1
Chi. & Eastern Illinois.....	128,530	123,894	I. 4,636	3.7
Chicago, Mil. & St. Paul.....	1,068,000	1,372,718	D. 304,718	22.2
Chicago & North-western.....	1,939,230	2,162,748	D. 223,518	10.3
Galveston, Houston & Henderson.....	92,880	75,875	I. 17,005	22.4
Grand Trunk.....	1,532,082	1,601,092	D. 68,980	4.3
Great Western.....	728,793	878,010	D. 149,217	17.0
Hannibal & St. Joe.....	267,816	259,140	I. 8,676	3.3
Illinois Central, Illinois lines.....	829,958	867,798	D. 37,840	4.4
Illinois Central, Iowa lines.....	199,439	268,248	D. 71,809	20.8
Kansas Pacific.....	415,987	362,451	I. 53,536	14.8
Mo., Kansas & Texas.....	389,110	368,146	I. 20,964	5.7
Mobile & Ohio.....	355,600	460,782	D. 105,182	22.8
St. L., Alton & T. H., Belleville Line.....	92,422	75,232	I. 17,190	22.9
St. Louis, Iron Mt. & Southern.....	673,979	716,839	D. 42,860	6.0
St. Louis, Kan. City & No.	523,056	499,290	I. 23,766	4.8
St. Louis & S. W.	171,158	169,097	I. 2,061	1.2
Toledo, Peoria & Warsaw.....	172,531	225,344	I. 52,813	23.4
Union Pacific.....	1,438,302	1,377,298	I. 61,004	4.4
Wabash.....	640,688	681,554	D. 40,866	6.0
Month of January:				
At. Miss. & Ohio.....	\$309,121	\$298,976	I. \$10,145	3.4
Ogdensburg & Lake Champlain.....	22,459	33,127	D. 10,668	32.2
Month of February:				
Atchison, Topeka & Santa Fe.....	\$370,500	\$184,885	I. \$185,615	105.3
Bur. Cedar Rapids & No.	97,277	147,190	D. 49,919	33.9
Central Pacific.....	1,063,000	980,528	I. 112,472	11.5
Chicago & Alton.....	312,311	300,186	I. 12,125	4.0
Chicago & Eastern Illinois.....	60,363	58,903	I. 1,460	2.5
Chicago, Mil. & St. Paul.....	476,000	606,583	D. 130,583	28.6
Chicago & North-western.....	805,000	1,084,857	D. 279,857	34.5
Galveston, Houston & Henderson.....	43,948	33,909	I. 10,039	29.6
Hannibal & St. Joe.....	132,393	124,096	I. 8,297	6.7
Illinois Central, Illinois lines.....	379,377	380,048	D. 671	0.2
Illinois Central, Iowa lines.....	95,806	131,339	D. 35,533	27.0
Kansas Pacific.....	236,214	172,965	I. 63,249	36.5
Mo., Kansas & Texas.....	194,857	181,118	I. 13,739	7.6
Mobile & Ohio.....	165,900	188,790	D. 22,890	12.3
St. L., Alton & T. H., Belleville Line.....	43,902	35,157	I. 8,745	25.0
St. Louis, Iron Mt. & Southern.....	339,950	341,318	D. 1,368	0.4
St. Louis, Kan. City & No.	205,828	234,061	I. 31,167	13.3
St. Louis & S. W.	88,681	83,130	I. 5,551	6.7
Toledo, Peoria & Warsaw.....	77,624	94,878	D. 17,254	18.2
Union Pacific.....	747,761	679,768	I. 67,993	10.0
Wabash.....	328,011	294,635	I. 33,376	11.3
Week ending Feb. 28:				
Great Western.....	\$75,571	\$79,233	D. \$3,662	4.6
Week ending March 1:				
Grand Trunk.....	\$107,354	\$183,303	D. \$75,949	8.7

Grain Movement.

Receipts and shipments of grain of all kinds, in bushels, are reported as follows for the week ending March 1, for six years:

Year.	Northwestern—	Atlantic
	Receipts.	Shipments.
1874.....	1,816,223	730,470
1875.....	1,621,938	474,089
1876.....	3,182,506	1,940,225
1877.....	2,555,959	1,315,110
1878.....	2,450,460	1,953,115
1879.....	3,390,902	1,727,475

The receipts of the eight Northwestern markets this year are not only larger than for any corresponding week of previous years, but they have been equalled but once before this year, and have been exceeded but twice in a winter week. The shipments of these markets have been exceeded in previous winters (every week but one last winter after the middle of January), but they are the largest of this winter. The receipts at Atlantic ports have never been exceeded in a winter week in the history of the trade except once, and that was two weeks before. The receipts of the month of February have been 17,300,000 bushels, against 14,836,500 last year, when they were immensely greater than ever before. These receipts would be esteemed a very fair business while navigation is open even—an average of 4,325,000 bushels per week.

Of the receipts at Atlantic ports this year, 41 per cent. was at New York, 25.2 at Baltimore, 14.3 at Philadelphia, 8.3 at Boston, 8.2 at New Orleans, 2.8 at Portland, and 0.2 per cent. at Montreal. New Orleans and Baltimore receipts were both unusually large in February.

San Francisco grain receipts for the week ending March 1 were 4,068 barrels flour, 471,705 bushels wheat, 35,420 bushels barley, and 7,717 bushels other grain; total, reducing flour to wheat, 535,182 bushels.

San Francisco exports for February were 44,243 barrels of flour and 957,678 bushels wheat. Wheat exports for the eight months of the California crop year ending Feb. 28 were: 1878-79, 12,732,455; 1877-78, 5,223,015; increase, 7,509,440 bushels, or 143.8 per cent.

Exports of California barley for the eight months of the crop year from July 1, 1878, to Feb. 28, 1879, were: By

sea, 31,606,000 lbs.; by rail, overland, 22,949,800 lbs.; total, 54,555,800. In 1877-78, the shipments by sea were 7,871,500 lbs.; 1876-77, 27,004,800 lbs.; 1875-76, 14,090,100 lbs. Exports by sea last year were pretty evenly divided between England and Australia, only a few cargoes going to South America and a few to New York.

Coal Movement.

Coal tonnages reported for the two months ending March 1 are as follows, the tonnage given in each case being only that originating on the line to which it is credited:

Anthracite:	1879.	1878.	Inc. or Dec.	P. c.
Philadelphia & Reading.....	880,430	389,654	I. 490,785	126.0
No. Central, Shamokin Div., and Summit Branch R.R.	63,162	56,899	I. 6,263	11.4
Sunbury, Hazleton & Wilkesbarre.....	3,990	3,329	I. 661	19.9
Central of N. J., Lehigh Valley.....	493,402	264,877	I. 228,525	86.3
Penn. & New York.....	437,924	434,829	I. 3,095	0.7
Del., Lackawanna & Western.....	4,770	1,738	I. 3,032	174.5
Del. & Hudson Canal Co.	490,620	331,831	I. 158,789	47.9
Pennsylvania Coal Co.	416,921	450,135	D. 33,214	7.4
State Line & Sullivan.....	155,513	87,719	I. 67,794	77.3
Total anthracite.....	2,956,412	2,026,446	I. 929,966	45.9
Semi-bituminous:				
Cumberland, all lines.....	115,819	106,630	I. 9,189	8.6
Huntingdon & Broad Top.....	21,576	22,467	D. 891	4.0
East Broad Top.....	9,372	12,572	D. 3,200	25.4
Tyrone & Clearfield.....	214,413	181,428	I. 32,985	18.2
Bellefonte & Snow Shoe.....	4,908	6,060	D. 1,152	23.8
Total semi-bituminous.....	366,088	329,706	I. 36,382	11.0
Bituminous:				
Barclay.....	60,755	47,654	I. 13,101	27.5
Allegheny Region, Pa. R.R.	23,813	30,546	D. 6,733	22.1
Penn. and Westmoreland.....	113,028	130,103	D. 17,075	13.1
West Penna. R.R.	31,093	14,327	I. 16,766	117.2
Southwest Penn. R.R.	4,805	5,171	D. 366	7.0
Pittsburgh Region, Pa. R.R.	62,177	58,796	I. 3,381	5.8
Total bituminous.....	295,671	286,597	I. 9,074	3.2
Total coal.....	3,252,083	2,313,043	I. 939,040	40.6

Actual coal tonnage passing over the Huntingdon & Broad Top Mountain Railroad for the two months ending March 1 was:

	1879.	1878.	Inc. or Dec.	P. c.
Broad Top coal.....	21,576	22,467	D. 891	4.0
Cumberland.....	22,121	3,064	I. 19,057	613.8
Total.....	43,697	25,531	I. 18,166	70.8

The Broad Top coal is mined on the line of the road; the Cumberland is received from the Bedford Division, Pennsylvania Railroad, at Mount Dallas and hauled through to Huntingdon.

New York-Philadelphia Freight Rates.

It is reported that the Pennsylvania and the New York & Philadelphia New Line, which have hitherto maintained rates between New York and Philadelphia by mutual agreement, have begun cutting rates between the two cities, and also to local points common to both. It is said that very heavy reductions have been made to large shippers, chiefly in the higher classes of freight, the quantity of which is considerable. The contest is said to arise from the Pennsylvania's opposition to the proposed Baltimore connection of the New Line.

RAILROAD LAW.

Conditional Sale of Equipment.

The United States Supreme Court has decided the case of Fostick, Trustee, against Schall, one of the cases arising from the Chicago, Danville & Vincennes foreclosure, which were appealed from the Circuit Court for the Northern District of Illinois. In this case Michael Schall sold the company a number of cars to be paid for by installments, the cars to remain the property of the vendor until the payments were completed. The Court now decides that the vendor's rights were not affected by the sale of the road under foreclosure, the title of the mortgages being subject to his contract with the company, made at the time of the delivery of the cars. The court, however, holds that, as the contract was for the sale of the cars and not for their rental, the Circuit Court erred in directing the Receiver to pay for their use. There are several similar cases depending on this decision.

THE SCRAP HEAP.

Railroad Equipment Notes.

The Rogers Locomotive Works, at Paterson, N. J., last week shipped a locomotive to Cuba and two to South America.

The Grant Locomotive Works, at Paterson, N. J., are building some more engines for the Metropolitan Elevated road, and have also an order from a Western road.

The firm of I. R. Adams & Co., of St. Louis, have taken the contract to equip the new Ft. Madison & Northwestern narrow-gauge road in Iowa. The locomotives will come from the Baldwin Works in Philadelphia; the cars from the Ohio Falls Car Co., at Jeffersonville, Ind.

The Rhode Island Locomotive Works, at Providence, have a number of orders on hand, including one from the New York Elevated road, and one for five mogul freight engines from the New York & New England.

A new company, known as the Laconia Car Co., has leased the car works of the Ranlet Manufacturing Co., at Laconia, N. H., and will start them up at once. John C. Moulton is Treasurer of the new company and Perley Putnam Superintendent.

The car-building firm of Gilbert, Bush & Co., at Troy, N. Y., has, it is stated, been reorganized as the Gilbert & Bush Car Company. Mr. Wagner, of the Wagner Sleeping Car Company, takes a large interest.

About a year ago the Central Car and Manufacturing Company, of Jackson, Mich., began suit against the Michigan Central Railroad Company, claiming that the works had been located in Jackson on the promise of large contracts for cars for that road, which had not been fulfilled. It is now stated that the case has been settled, the Michigan Central agreeing to buy the car works at a valuation of \$32,000, the suit to be withdrawn.

The Jackson & Woodin Manufacturing Co., at Berwick, Pa., has contracts on hand for 2,500 freight cars, and employs now about 600 men.

The International & Great Northern shops, at Palestine, Tex., are building a number of flat cars, and for some time have been turning out six a week.

Iron and Manufacturing Notes.

The Helmbacher Forge & Rolling Mill Co., at St. Louis, is turning out 20 tons of bar iron and 10 tons of car axles a day, employing about 150 men.

The Lawrence Iron Works, at Ironton, O., is making light rails for some mine and furnace roads.

H. W. Johns' Asbestos fire-proof paint has been used to protect the wood-work in the great wholesale and retail dry-goods stores of A. T. Stewart & Co., New York. The surface of the wood-work covered by this paint is nearly five acres in area.

D. M. Mohler & Son are now filling an order from France for 316,000 feet of railroad timber at their steam saw-mill, Alderson, West Va., immediately on the line of the Chesapeake & Ohio Railroad, which will be completed and shipped by May 15.

The Springfield (Ill.) Iron Co., through I. R. Adams & Co., of St. Louis, has contracted to furnish the rails and fastenings for 20 miles of the Ft. Madison & Northwestern narrow-gauge road. A telegraphic dispatch says that the company's rail-mill was burned down on the night of March 9, destroying the building and damaging the machinery, the loss being estimated at \$25,000.

The Theodore Pomeroy Iron Co., at West Stockbridge, Mass., has been selling a good deal of the iron on hand, and will probably start up its blast-furnace soon.

It is said that the Franklin Iron Co. will soon put its Franklin Furnace, in Sussex Co., N. J., in blast, making Bessemer pig-iron.

The Oxford Iron Co., at Oxford Furnace, N. J., is running one of its furnaces on spiegel-eisen, and making it very successfully.

E. & T. Fairbanks shipped 399 car loads of finished scales from their factory at St. Johnsbury, Vt., during 1878.

The Phosphor-Bronze Smelting Co., in Philadelphia, report business good and orders increasing.

Bridge Notes.

The Passaic Rolling Mill Company, at Paterson, N. J., has taken the contract to replace the old part of the New York Elevated road in Greenwich street, New York. Work is to be begun at once. The company has also the contract for the structure required for a third track at several points on the line.

The Cleveland Bridge and Car Works, at Cleveland, O., has filed articles of incorporation. It is, apparently, a reorganization of the old McNairy & Claffen Company. The incorporators are: H. M. Claffen, A. C. McNairy, S. Sheldon, John Coon, and George W. Coon.

The Baltimore Bridge Co. has taken a contract to build an iron pier, or coal wharf, at Locust Point, Baltimore, for the Franklin Coal Co.

Prices of Rails.

Steel rails are reported firm at \$42 to \$45 per ton at mill, with no large transactions noted.

In iron rails, also, no large transactions are noted, but prices are firm, with a slight upward tendency and an active demand for small lots, with some large orders waiting to be placed. Quotations are, for heavy sections, \$33.50 to \$34.50; for light sections, \$35 to \$36 per ton at mill.

For old rails the market is quiet, but firm, with little stock offered. Quotations are \$20 to \$21 per ton in Philadelphia.

Spikes.

In New Zealand, as in California, the Chinaman abounds, and there too he has to resort to strategy to make good his position. It is related that in Otago, where Scotchmen are a majority of the colonists, a contract for grading a road was to be let, and the lowest bid was signed "McPherson." Notice was sent to the said McPherson to meet the board and complete the contract. In due time they met, but behold! McPherson was yellow in hue and had an unmistakable pig-tail. "But," gasped the President, "Your name can't be McPherson." "Alle lightee," cheerfully answered John, "nobody catch um contract in Otago unless he name Mac." The contract was signed, and the Mongolian McPherson did his work as well as if he had really hailed from Glasgow.

Narrow-gauge roads are getting old enough to fail now, and for some months past they have been doing their full share of the default, foreclosure-suit and receiver business. A road that does not earn enough to keep it going, or has to steal its traffic from older lines where there is barely business for one, is bound to get into trouble, whatever its gauge may be. And courts and creditors have no more mercy on three feet than on six or any other number.

The First Thirty-Foot Rails.

A correspondent some time ago made the statement of the time when the first 30-ft. rails were rolled in this country. We are informed by Mr. A. F. Smith, who was then connected with the Cumberland Valley Railroad, that in 1840 he made a contract with Messrs. Reeves & Buck, proprietors of the Safe Harbor Iron Works, of Lancaster County, Pa., and the Monteur Iron Works for 15 miles of rails of that length, the weight to be 50 lbs. per yard. The rails were afterward laid on that line, and some of them were taken up only a few years ago.

Springfield Iron Company.

An officer of this company writes us as follows, under date of March 9, concerning the fire in the works at Springfield, Ill.: "A fire at our works last night destroyed our rail-mill, puddle-mill, producer-house, and two boiler-houses. Our bar-mill with its producer-house, also the machine shop, and the blooming-mill and the steel melting house, (the last two not yet in operation), were saved. The loss will amount to \$25,000 to \$30,000, \$18,000 of which was covered by insurance. The fire took place about half-past six o'clock, work having ceased two hours previously. The fire was occasioned by the tar and soot, which had accumulated in the gas-flue, taking fire. This was communicated to the building. We shall proceed to enlarge and rebuild the rail-mill at once, making the building of brick and fire-proof. We hope to be making rails again before the close of the month, and in the meantime our business in fish plates, bolts and nuts and bar iron goes on as usual."

A Locomotive with a Good Record.

Engine No. 62, built at the popular Brooks Locomotive Works at Dunkirk, N. Y., and placed upon the Western Division of the Erie road, February, 1870, now presents to those interested in good locomotives and good engineering, a record unparalleled on the Erie road, and perhaps second to none on any other road in this country.

She went to shop for her first general repair Oct. 19, 1874, having run 143,547 miles. She left the shop December, 1874; from which time up to Feb. 2, 1879, she has made 136,586 miles, and is still making her regular daily trips on the branch with good prospects of remaining out of the shop

for one or two years yet. While such a record sets forth the ability of the engineer who has had her in charge during these years, Mr. Alfred Mark, one of Erie's oldest and best engineers, it also speaks well for the builders.—*Hornellville (N. Y.) Times, March 6.*

Forty-two Inch Car Wheels.

It is said that the 42-inch wheels in use under one of the trains on the New York & Boston Express have not done as well as expected. They have, however, had a very severe winter to try them, and an unusual number of breakages might be looked for. The train-men are said to complain that the brakes do not hold so well as on the smaller wheels.

Cooper's Elastic Steel Wheel.

These wheels are now used on the following roads: The Boston & Providence have one set under one of its heaviest engines; the Boston & Fitchburg has one set under a passenger car which have been in use more than a year; the Boston & Maine has two sets under its heaviest engines; two sets have been in use over a year on the New York & New England road, and the wheel company is now filling an order for three sets more. Two sets are in use on the Connecticut & Passumpsic Rivers road, and one set on the Connecticut River Railroad. One set has also been furnished to one of the elevated roads in New York, but is not in use yet.

Test by Pullman Car Axles.

The following test was recently made of the strength of an iron and a steel axle which had been in use on the Pennsylvania Railroad under Pullman parlor cars:

Axle No. 1 was of iron, had been used with paper wheels, and had made a mileage of 312,000 miles. Diameter of journals, $3\frac{1}{2}$ in.; at centre of axle, $4\frac{1}{2}$ in.
Axle No. 2 was of Otis steel, had been used with paper wheels, and had made a mileage of 282,000 miles. Diameter of journals, $3\frac{1}{2}$ in.; at centre of axle, 4 in.

	Blow.	Fall.	Deflection.		
			Before blow.	After blow.	Total.
Axle No. 1, iron.....	1	25 ft.	$\frac{1}{8}$ in.	$10\frac{1}{2}$ in.	$11\frac{1}{8}$ in.
	2	25 "	$10\frac{1}{2}$ "	Broke.	"
	3	25 "	$\frac{1}{8}$ in.	$11\frac{1}{8}$ in.	$12\frac{1}{8}$ in.
Axle No. 2, steel.....	4	25 "	$11\frac{1}{8}$ "	$10\frac{1}{2}$ "	$11\frac{1}{8}$ "
	5	25 "	$10\frac{1}{2}$ "	$\frac{1}{8}$ "	$11\frac{1}{8}$ "
	6	25 "	$\frac{1}{8}$ "	$11\frac{1}{8}$ "	$12\frac{1}{8}$ "
	7	40 "	$11\frac{1}{8}$ "	16 "	$16\frac{1}{8}$ "
	8	40 "	16 "	1 "	17 "
	9	40 "	1 "	$15\frac{1}{2}$ "	$16\frac{1}{2}$ "

* Fracture granular.

Axle No. 2 was then taken from the supports and allowed to cool for two hours and then subjected to another blow, which broke it with a fall of 40 feet. The fracture was granular.

OLD AND NEW ROADS.

Atlantic & Great Western.—Holders of securities were last week invited by James McHenry to a meeting to be held in London, March 11, to consider the following points:

1. The power of the Trustees to depart from the reconstruction scheme dated July 21, 1875.
2. That the increase to \$10,000,000 of the prior lien bonds and the undefined increase in the issue of first-mortgage bonds are imprudent and unnecessary.
3. That the Trustees cannot impose fines and penalties and arbitrarily fix a time for the deposit of securities, and that such a course is contrary to their powers and to the laws of New York, Pennsylvania and Ohio, under which the company is incorporated.
4. That the lease into which the Trustees have signified their intention to enter is one involving most disastrous consequences to the bond and shareholders.
5. That the recent action of the Trustees renders it impossible for the bond and shareholders to longer repose confidence in their judgment.
6. That a committee be appointed to represent the bond and shareholders as to all further action to be taken on behalf of the company.

London dispatches of March 11 say that about 150 persons were present at this McHenry meeting, and adopted resolutions substantially the same as the call for the meeting, declaring the Erie lease disastrous and expressing want of confidence in the Trustees. A committee was appointed consisting of Messrs. Cave, McHenry, Mowatt, McDougall, Shephard, Sir Henry Tyler, Sir Charles Young, Lord Bury, Lord Kinnaird and Lord Montagu.

In the suit of the United States Rolling Stock Company, in the New York Supreme Court at Buffalo, March 11, Judge Haight decided a motion by the petitioner for an order directing the Receiver to pay certain funds with interest for the depreciation in the value of the rolling stock, which was made and argued Jan. 28. The Court grants the motion, fixing the amount at \$14,083.81, with interest from Aug. 2, 1878.

Atlantic, Mississippi & Ohio.—The Receivers have finally paid off the arrears of wages due at the time of their appointment. The last payment was made with that of the current wages for January.

Baltimore & Hanover.—Contracts for grading the last section have been let, and work will soon be in progress all along the unfinished part of the line.

Baltimore & Ohio.—A compromise seems to have been reached in the war upon this company in West Virginia. The Senate of that state on March 8 adopted a resolution accepting the new local tariff of the company and authorizing special rates in certain cases, provided the special rate shall be given to all shippers by the car-load or larger quantity, without discrimination. The resolution rescinds the former one directing the Attorney General to proceed by *quo warranto* or otherwise for the forfeiture of the company's charter.

Boston Elevated.—The Railroad Committee of the Massachusetts Legislature reports recommending that "leave to withdraw" be granted to the petitioner for authority to build an elevated railroad for freight purposes through certain streets in Boston. This is equivalent to a rejection of the petition.

Boston & Mystic Valley.—Charges are made that this company, which is building a short suburban line out of Boston, has been fraudulently managed. It is said that the grading of 11 miles has been charged at \$28,000 a mile, al-

though the actual expenditures have been less than \$60,000. The Railroad Commissioners have been inspecting the company's books and are said to have found an apparent discrepancy of \$85,000. They have referred the matter to the Attorney General for his action.

Boston Terminal Facilities.—A plan is now being worked up for the establishment of a freight terminus at Boston for the Hoosac Tunnel Line by the purchase of waterfront property on the Charles River and the building of large wharves and warehouses. It is proposed to organize a corporation to do the work, the stock to be divided among the railroad companies interested in the line.

Brattleboro & White Hall.—Arrangements have been made by Harris Brothers, the contractors for this road, to place its bonds. The cars for the road have been ordered in Wilmington, Del., and the locomotives at Paterson, N. J.

Breakwater & Frankford.—The Delaware Legislature has passed a bill authorizing the State Treasurer to accept from this company, in lieu of the \$12,000 interest due to the state on its loan in aid of the road, the sum of \$6,000, provided that if the net earnings of the road shall exceed that sum the company shall pay the additional amount to the state. The resolution authorizes the reduced payments for three years.

Canadian Pacific.—The contractors to whom was awarded the grading of the 67 miles of road from Winnipeg, Manitoba, eastward, having failed to furnish the required security, the contract has been given to the next lowest bidders, Frazer, Grant & Pitblado, who have complied with all the requirements.

Central Branch, Union Pacific.—This company agrees to begin work on its proposed extension from Cawker City, Kan., westward, and to finish the line to Bull's City, 35 miles, this year, provided the towns on the line will vote \$50,000 aid to the road. The offer will probably be accepted.

Chautauqua Lake.—It is reported that Mr. Lewis, who has owned this road for some months, has sold it to parties from Boston, who represent some oil interests there. The road has been in trouble for some weeks, the owner having quarreled with the managers of its connections at both ends of the line. He is said to have received \$75,000, the same amount he paid for it. The road was formerly the Buffalo, Corry & Pittsburgh, and is 48 miles long, from Corry, Pa., to Brocton, N. Y.

Cincinnati Southern.—The new form of lease or license prepared by the Trustees, is not acceptable to the Common Carrier Company, which has been for some time working the finished section of the road. Its provisions are considered too stringent, virtually placing the entire management with the Trustees, and leaving no liberty to the Common Carrier Company to exercise its judgment.

The former lease has now expired, but a Cincinnati dispatch says that arrangements have been made by which the Common Carrier Company will continue to work the road for the present, receiving 8 per cent. of the net earnings for its services, instead of 10 per cent. as heretofore.

Cleveland, Mount Vernon & Delaware.—It is said that the bondholders are considering the question of foreclosing the mortgages on this road. Their agent recently made a careful inspection of the road, and no action will be taken until his report is made. Most of the bonds are owned in Holland.

Colorado Central.—This road is controlled by the Union Pacific and managed by its officers, but it is now stated that the Cheyenne Division—the line from Denver to Cheyenne—will hereafter be worked by the Union Pacific directly, having been leased by that company from March 1 for 35 per cent. of the gross earnings. The other branches of the road will continue to be worked under the separate organization.

Dayton & Southeastern.—Receiver (timberling) makes the following statement for January and the period from Aug. 9, 1878, to Jan. 31, 1879:

	January	From Aug. 9
Gross earnings.....	\$8,482.95	\$46,015.73
Working expenses.....	6,123.25	26,812.20
Miscellaneous expenses.....	1,597.55	1,808.45
Betterments.....		8,390.48
Total.....	\$7,720.80	\$37,011.13
Balance, surplus.....	\$762.15	\$9,004.00

Unusual payments were made in January for taxes and for rebuilding an engine-house and engine damaged by fire. The chief payments for betterments were \$4,503.50 for new cars and \$1,142.31 for ballasting.

Detroit River Tunnel.—The *Detroit Free Press* of March 9 says: "Engineer Chesbrough, noted for his successful building of the lake tunnel at Chicago, has prepared plans and specifications and estimates for a tunnel under the Detroit River at Grosse Isle. The matter has been under consideration for some time in New York, and it is understood that Mr. Vanderbilt has informally been presented with proposals for the construction of the tunnel. It has apparently come to the point that either a tunnel or a bridge is to be built over the Detroit River. As there is considerable opposition to a bridge—which, were it not for the opposition, might very well be erected at Detroit—the tunnel will probably be the resource of the railroad men. It is said that the limestone ledge which crops out near the surface in the region adjacent to Grosse Isle, affords superior facilities for a tunnel, being easier and safer to work than the hard, impervious blue clay below the bed of the river at Detroit. Both the tunnel and the bridge would be preferable nearer the city, but the plans contemplate the construction at Grosse Isle. No representations in regard to what might be done in the way of constructing a tunnel at Detroit have been made to Mr. Vanderbilt, so far as is known."

Grand Rapids & Indiana.—The extension of this road from the present terminus at Petoskey, Mich., northward to Little Traverse is proposed. A considerable amount has been subscribed by parties interested in securing the extension.

At the recent annual meeting the stockholders voted to ratify the lease of the Allegan & Southeastern road for 99 years. The leased road is the Michigan section of the old Mansfield, Cold Water & Lake Michigan, and has $11\frac{1}{2}$ miles of finished road, from Monticello to Allegan, besides some miles of graded road-bed.

Guatemala.—A ship recently sailed from San Francisco, having on board a quantity of ties, lumber and other materials and 100 Chinamen to work on this road. The company has begun to build a line from the port of San Jose de Guatemala to the town of Escuintla, the centre of the chief coffee district. The distance is 28 miles, and it is intended to build the road hereafter to the city of Guatemala, 32 miles beyond Escuintla. The government guarantees a certain profit on \$1,000,000 capital, and loans the company \$210,000. The project includes a final extension from Guatemala 140 miles eastward to the port of San Tomaso on the Atlantic coast.

Houston, East & West Texas.—The track on this road is now laid to Sheppard, Tex., 58 miles eastward from Houston, and some 4 miles from the Trinity River. Regular trains now run to Round Prairie, 50 miles from Houston, and the road will soon be opened for traffic to Sheppard.

Illinois Central.—This company reports that for February, 1879, the traffic on its lines was as follows:

	1879.	1878.	Decrease.	P. c.
In Illinois.....	\$379,377	\$380,048	\$671	0.2
In Iowa.....	95,860	131,339	35,473	27.0
Total.....	\$475,237	\$511,387	\$36,144	7.1

During February the land sales were 564.21 acres for \$3,582.10, and the cash collected on land contract was \$5,590.77.

Indianapolis, Decatur & Springfield.—Work will be begun early in April on the extension of this road from Logansport, Crawfordville & Southwestern crossing at Guion, Ind., eastward to Indianapolis. The distance is 52 miles, and the work is to be done by October. The company now has 100 miles of road, of which 85 miles, from Decatur, Ill., to Montezuma, Ind., were acquired, through foreclosure, from the Indiana & Illinois Central, and 15 miles, from Montezuma to Guion, have been built by the present company. Since the opening of the last named section, the business of the road has increased 50 per cent.

Ironton & Jackson.—This company has been organized to build a railroad from Ironton, O., northward to Jackson, about 35 miles. The capital stock is to be \$400,000.

Kansas Central.—Negotiations are pending for the extension of this road from Onaga, Kan., westward through Marshall County.

Kansas Pacific.—Concerning the reported transfer of the control of this road to the Union Pacific, the *New York American Exchange* says: "The announcement is now officially made that the Union Pacific interest has secured control of the majority of the stock and junior securities of the Kansas Pacific Company, and that a proposition for settlement will be made to the Denver Extension bondholders, which will probably be acceptable to them."

"In April, 1878, a pool was formed in the stock and junior securities of the Kansas Pacific by Messrs. Sidney Dillon, Frederick L. Ames, Jay Gould, Carlos S. Greeley, John D. Ferry, Robert E. Carr, Adolphus Meier, B. W. Lewis, Jr., Henry Villard, John P. Usher, D. M. Edgerton, and Artemas H. Holmes. The purpose of the pool, as stated in the pool agreement, was as follows: 1. To unite in interest the Kansas Pacific and Union Pacific railway companies so that the two roads shall be operated as one continuous line. 2. To provide for the payment or other satisfaction of the Denver Extension bondholders. 3. To provide and secure the payment of the bonds secured by the first mortgages upon the main line, and also for the payment of the bonds upon the branch road, so far as practicable, having due consideration for the value thereof. The company was to be reorganized upon a substantial basis, and the stock created thereon was to be apportioned among the parties to the pool according to their respective interests therein. The securities deposited in the pool were as follows: Stock, \$9,600,000; floating debt, \$1,200,000; unsubordinated income bonds, \$227,000; subordinated income bonds, \$4,048,350; second land-grant bonds, \$1,055,000; Arkansas Valley bonds, \$570,000; and Leavenworth Branch bonds, \$630,000. The par value of the securities deposited was \$17,330,350, but their market value was \$4,855,350. The stock was estimated at 12½¢, the floating debt at par, the subordinated income bonds at 30¢, and the other securities at 50 per cent. The majority interest in the pool was held by Mr. Jay Gould and his friends."

"The history of the different negotiations between the Kansas Pacific Pool and the Denver Extension bondholders has been given in the *American Exchange*. Negotiations were finally broken off and the bondholders appointed Messrs. L. H. Meyer, August Rutten, of this city, and William Endicott, Jr., of Boston, a committee to press the litigation for foreclosure. This brought matters to a culmination, and recently Mr. Gould reopened negotiations through Mr. Frederick L. Ames on the part of the Union Pacific, and Mr. Charles F. Southmayd for the Kansas Pacific. Mr. Gould also at the same time made proposals to St. Louis members of the pool for a transfer of their securities to him. These latter negotiations were completed last week, and Mr. Gould became the owner of a majority of the stock and junior securities of the Kansas Pacific Company. It is understood that the price paid was \$1,250,000 in cash, the members of the pool retiring being Messrs. Greeley, Ferry, Carr, Meier, Lewis, Usher and Edgerton. In accordance with the agreement the seven St. Louis directors of the Kansas Pacific Company—Messrs. John D. Ferry, Dwight Trendway, Robert E. Carr, Theodore G. Meier, B. W. Lewis and S. M. Edgell—have resigned, and a new board will be made up in the interest of the Union Pacific. The receivership of the company will be continued until the termination of foreclosure proceedings, and it is also understood that the resignations of Mr. Adolphus Meier and Mr. Carlos S. Greeley, Trustees under some of the mortgages, will be offered."

"On Saturday the basis of a settlement with the Denver Extension bondholders for the reorganization of the Kansas Pacific was agreed upon, and it will be submitted to Mr. Meyer's committee this week. It is officially given in outline as follows:

"First—That all arrearages of interest accrued since the second default of the company, in November, 1876, shall be paid up to Nov. 1, 1878, and that such payments shall be accepted as payment in full for all interest due to January, 1879.

"Second—That the interest on the Denver Extension bonds, now 7 per cent., shall be reduced to 6 per cent.

"Third—That for the payment of the Denver Extension bonds at maturity a sinking fund shall be established, toward which the annual payment for the first nine years shall be \$100,000 a year, to be increased for the remaining years until maturity.

"Fourth—That the rights of the Denver Extension bondholders shall be fully adjudicated by obtaining a decree of foreclosure establishing their priority over the junior mortgages.

"Fifth—That the arrearages of interest on the June and December mortgage bonds shall be paid.

"If this proposition is accepted by the Denver Extension bondholders, the reorganization of the Kansas Pacific Company will proceed harmoniously, and the Kansas Pacific, Union Pacific and Colorado Central railroads will be operated in one interest."

Leavenworth, Lawrence & Galveston.—The name of the new company organized by the bondholders who bought this road at foreclosure sale is to be the Kansas City, Lawrence & Southern.

Levis & Kennebec.—For some time past this Canadian road has been worked under lease by L. A. Senecal & Co., who retained control through the vote of the assignee of the bankrupt estate of the contractor who built most of the road. The estate held 88,000 shares, a very large majority of all

the stock, and the sale of this was prevented by various technical delays. The lessees and the company also refused to pay interest on \$250,000 bonds issued by the company and sold in England, on the ground that the issue was illegal and fraudulent. Last week, however, the Quebec courts decided that the bonds are legal and valid, and must be paid. Last week also the same court ordered the immediate sale of the 88,000 shares held by the bankrupt estate, and it is expected that the stock will be bought by the bondholders' agent, securing them control of the road.

Louisville, Harrod's Creek & Westport.—A suit has been begun by J. B. McFerran, Trustee, to foreclose the mortgage for \$80,000 on this road. The road is 11 miles long, from Louisville, Ky., to Prospect, and is of 3-ft. gauge.

Minnesota Swamp Land Grants.—The St. Paul Pioneer-Press, of March 5, says: "After several long and excited meetings of the joint railroad committee of the two houses yesterday, something like a mutually satisfactory arrangement was made for a division of the swamp lands belonging to the state. All leading interests have been harmonized, and the engineers of this gigantic scheme parceling out five or six millions of acres of swamp lands are confident that they can muster strength enough to push it through both houses within the next two days. A substitute bill will be reported back this morning, and it will embrace all preceding plans for getting hold of swamp land. It is understood that the grant of lands heretofore made to the state institutions will be preserved intact, and that disarms opposition in some quarters. Then a few thousand acres will be given to reclaim some land along the Mississippi River, after which the residue will be given to a railroad running from Minneapolis to St. Cloud; to the Mankato & St. Cloud road; to a road running from Minneapolis to Hutchinson, and thence west; to the Little Falls & Big Stone road; to the Fergus Falls road; to a road in Houston county; to the St. Louis Dalles Improvement Company, and to a lot of paper roads that had not been completed at a late hour last night. It was also agreed that those roads which file plats of their permanent surveys within eighteen months shall be entitled to the swamp lands within 10 miles on either side of the line, and enough elsewhere to make up eight sections per mile, and shall have five years in which at least 10 miles of road per year must be built. The principal opponents to this omnibus bill are the representatives on the unsettled parts of the state, whose lands will all be consumed long before they are able to build any roads, and conscientious members from the older part of the state who have no need of more railroads."

Missouri, Iowa & Nebraska.—Contracts are reported let for grading an extension of this road from the present terminus at Centerville, Ia., westward to Carlton, about 30 miles, the work to be done by July 1.

Missouri River, Fort Scott & Gulf.—The bondholders, who bought this road at foreclosure sale, will organize a new company, to be known as the Kansas City, Ft. Scott & Gulf.

Mobile & Northwestern.—This road is reported completed and in operation from Dowd's Landing on the Mississippi, opposite Helena, Ark., southeast to Jonestown in Coahoma County, Miss., a distance of 17 miles, this track having been laid several months ago. A Southern exchange says: "The company have no money, but they keep working all the time, lengthening the road and paying laborers with the receipts of the portion completed. The engineer is conductor, freight agent, collector and general superintendent of the train while on duty. The President does the work of three or four men, and the bookkeeper is freight receiver, shipper and accountant."

Nashville, Chattanooga & St. Louis.—Parties interested are urging upon this company an extension of its Winchester & Alabama Branch from a point near Rock Springs, Tenn., southward to Huntsville, Ala. The distance is about 23 miles, and there is no heavy work on the line.

New York Elevated.—On the West Side Line of this road the track is completed up Ninth avenue to Seventy-second street, about half a mile above the old terminus at Fifty-ninth street. Preparations are being made to rebuild the old part of the structure on Greenwich street and Ninth avenue, which was the first part of the road built and was not designed for locomotives.

On the East Side Line the Chatham Street Branch is nearly ready for use. The repair shops of the road are now being built on Third avenue, 98th and 99th streets. They will be large and supplied with all necessary tools and appliances. Several of the down-town stations on the West Side Line are to be moved so as to accommodate better the large travel to and from the New Jersey ferries.

The number of passengers carried Saturday, March 8, was 98,023—the largest in the history of the road. The next day (Sunday) the number was 64,924. The heaviest business is usually on Saturday and the lightest on Sunday. Saturday's earnings were probably about \$7,000, or \$500 per mile of road. The New York Central & Hudson River last year averaged about \$74 per mile per day, of which about \$19 was from passengers. On the main line of the Pennsylvania Railroad the earnings in 1878 were at the rate of about \$150 per mile per day.

New York, Lake Erie & Western.—Sealed proposals will be received at the office of the Superintendent Delaware Division, at Port Jervis, N. Y., until March 22 for the grading and masonry of three sections of second track: 1. Two miles from the east end of Cochection long switch eastward. 2. Two miles from mile-post No. 141 to the west end of Hankins switch. 3. One mile west from the east end of Bouchou long switch. Plans, etc., can be seen at the office in Port Jervis.

New York & Oswego Midland.—A meeting of stockholders was held in New York March 12, to take steps to secure a share in the reorganization of the company. A plan was submitted providing for the issue of new stock for the old, and it was resolved to appoint a committee to confer with the committees of bondholders. The meeting then adjourned until March 22, at Norwich, N. Y.

New York, Pittsburgh & Chicago.—This company, which promises to build a narrow-gauge road from New York to Chicago, with branches to Toledo and St. Louis, has established an office in Toledo, and is negotiating for the purchase of several small roads in Ohio and Eastern Indiana, which are to form part of the projected line.

North Carolina Railroad Commission.—A bill is before the North Carolina Legislature providing for the appointment of a Railroad Commissioner to have a general supervisory power over the railroads of the state. It is thought that it will pass.

Northern Pacific.—The track laid across the Missouri River on the ice, at Bismarck, Dakota, was taken up March 11, the ice being nearly ready to break up. For two days the trains had crossed with considerable trouble, water and floating ice running over the firm ice, which was still solid enough to carry a train. The track has served its purpose in enabling the company to transfer across the river the

materials needed for the first section of 25 miles of the new extension westward.

Oil Creek & Allegheny River.—The long litigation over the assets remaining from the foreclosure of this road in 1876 has been ended in accordance with the decision of the Pennsylvania Supreme Court. The Crawford County Court directs that the fees of the Receiver and a number of lawyers be paid, amounting to about \$22,000, and that the balance, some \$40,000, be turned over to the Receiver of the Pennsylvania Transportation Company to apply on the judgment held by him. The litigation did not affect the foreclosure and sale of the road, but was over the assets held by the Receiver after the sale.

Oil Transportation.—The investigation of the charges of discrimination in the transportation of oil, made to the Secretary of Internal Affairs of Pennsylvania, has recently been resumed and promises to continue for a considerable time. A number of the officers of the Pennsylvania Railroad were examined in Philadelphia last week and this week as to the relations of that company with the Standard Oil Company and its contracts affecting the transportation of oil. Some of the testimony is quite interesting, but little or nothing has been brought out that was not previously known.

Old Colony.—Boston dispatches mention a report that this company will make a new line from Boston to Providence by building from its line at Raynham, Mass., across some three miles to Whittemore, then running on the Attleboro Branch to South Attleboro, then building across to Valley Falls on the Providence & Worcester, and using the track of that road into Providence. This would require some 12 miles of new road and the line when finished would be 10 or 11 miles, or 25 per cent. longer than the Boston & Providence road, a serious difference for passenger traffic.

Oregon Central.—Oregon papers state that contracts have been let for the rails, ties and other materials for the extension of this road southward 50 miles to Corvallis.

Oxford & Henderson.—The sum required to build this road has been subscribed, including a tax from the town of Oxford, and the company will be fully organized, and work begun at once. The road is to run from Raleigh & Gaston at Henderson, N. C., west to Oxford, about 14 miles.

Pennsylvania.—The annual meeting of this company in Philadelphia, March 11, was not as quiet as the meetings usually are. There was an unusually large attendance and Mayor Stockley presided, as he has done for years past. The first discussion arose on a resolution directing that hereafter the annual report be printed in pamphlet form and distributed at least ten days before the meeting. It was urged that the present method of publication in the Philadelphia papers cost \$12,000 to \$14,000, and only made it accessible to those who lived in Philadelphia. After an extended discussion this was referred to the board.

Edward J. Lauman offered a series of resolutions, for which he asked consideration in detail. In the first clause the President and board of directors of the Pennsylvania Railroad Company was respectfully requested to make the following reductions in the pay of their employees: On salaries of \$1,200 and not more than \$2,000, a reduction of 10 per cent.; on salaries of \$2,000 and not more than \$4,000, a reduction of 20 per cent.; and all salaries of \$4,000 and over a reduction of 30 per cent. Secondly, it was requested that there be placed on the Pennsylvania Railroad and its branches the company's own express to the exclusion of all other express lines, the company to build and furnish its own express cars. Thirdly, it was requested that there be built and placed on the Pennsylvania Railroad and on all its branches the company's own sleeping, parlor and palace cars to the exclusion of the Pullman and all other sleeping, parlor and palace cars. Fourthly, it was requested that there be furnished the shareholders at the next annual meeting a report of the number of employees of the company who receive \$1,000 per annum, and all receiving over that sum, together with the duties and titles of all employees receiving over \$2,000. Fifthly and last, it was requested that the board of directors for 1879-80 issue no annual or trip passes, except to employees, and only to employees when engaged on the business of the road.

These called out an extended debate, but were referred to the board finally.

Mr. Edward T. Parker then presented a letter charging fraud in a purchase of coal lands made in 1872. The lands were bought through Mr. Anspach, for many years a Philadelphia city director in the company, and were paid for by \$99,000 Pennsylvania Canal bonds. It was charged that the tract was really worthless, and that its owners received only \$40,000, the rest being divided among other parties. This caused quite a sensation. General Solicitor John Scott stated that the transaction had been investigated by a committee; he admitted that it had been doubtful, and said that Anspach had refunded \$22,000 to the company. Some of the speakers said that Anspach should have been prosecuted, or at least expelled from the board, while others intimated that he had been made a scape-goat to cover up the sins of other officers of the company. Finally the matter was laid on the table.

A resolution inquiring into the running of special trains was referred to the board. The following committee was appointed to nominate directors to be voted for at the annual election: C. H. T. Collis, A. Loudon Snowden, Stephen S. Remak, Israel H. Johnson, Israel V. Peterson, Daniel Steinmetz and Clayton McMichael. Then the meeting adjourned.

Pittsburgh, New Castle & Lake Erie.—On the extension of this road from Zelenople, Pa., to Wurttemberg five miles are graded and work is in progress on the other seven miles. On the Pittsburgh end of the road work has been begun on the extension from Etna station, the present terminus, into Allegheny City, about four miles.

Port Huron & Northwestern.—Track-laying has been begun on this road, which is to run from Port Huron, Mich., northward along the shore of Lake Huron.

Portland & Ogdensburg, Vermont Division.—The first of the certificates authorized by the Court has been issued by the Receivers, in payment for a lot of lumber. A contract is nearly concluded for 50 cars, to be paid in certificates. The Receivers, it is stated, have several bids to supply rails and other material for repairs, and take in payment the new certificates at par.

Profile & Franconia Notch.—This new narrow-gauge road is now well advanced, and the company hopes to have it opened for travel in time for next summer's business. It will be 9½ miles long, from the Boston, Concord & Montreal at Bethlehem, N. H., to the Profile House in the White Mountains, and in that distance overcomes an elevation of 1,000 feet.

St. Louis, Iron Mountain & Southern.—The injunction which was granted over a year ago, and which prevented the holding of an election for directors of this company last year, has been modified so as to allow an election to be held, but not until after April 2 next. It is vacated

in all respects except as to the postponement of the election until that time. This action was taken by consent of all parties.

The annual meeting in St. Louis last week took no action except to adjourn until next month, when the election can be held.

Santa Rosa & Napa.—It is proposed to build a railroad from Santa Rosa, Cal., on the San Francisco & North Pacific, southeast by way of Sonoma to Napa Junction on the California Pacific. The distance is 38 miles, through a good country with some heavy timber.

Shawnee, Hocking Valley & Columbus.—This company has been organized to build a road from Columbus, O., southeast to Shawnee in the Hocking Valley coal region, with a branch to Athens. The road, if built, would cover nearly the same ground as the Columbus & Hocking Valley.

Sleeping-Car Regulation.—The Legislature of Illinois is not the only one which has been considering the question of regulating sleeping-car charges. A bill is pending in the Missouri Legislature to limit charges to \$1 a night for single berths. A similar bill is before the Virginia Legislature, and the Attorney General has given a formal opinion that it is within the power of the state to regulate sleeping-car companies by statute.

Southern, of Long Island.—The New York Supreme Court has granted a decree of foreclosure against this road at the suit of the second-mortgage bondholders. The decree is obtained in pursuance of the plan of reorganization agreed upon some time since.

Southern Pacific.—The track on this road is now laid to a point 38 miles east of the late terminus at Mohawk Gap, Arizona, and 96 miles from Yuma. Regular trains run to Stanwix, 85 miles from Yuma, which is the terminal station at present.

Tide-Water Pipe Lines.—The Court of Common Pleas at Williamsport, Pa., has granted a preliminary injunction to restrain the Northern Central Company from interfering with the laying of this company's oil-pipe line under its track near Williamsport.

Toledo, Peoria & Warsaw.—Receiver Hopkins reports for January and February as follows:

Balance, Jan. 1.....	\$7,128.40
January receipts.....	114,719.85
February ".....	131,790.27
Total.....	\$253,638.52
January disbursements.....	\$119,906.80
February ".....	115,558.00
	235,464.80

Balance, March 1..... \$18,173.52
In January the disbursements were \$5,187.15 greater than the receipts; in February the receipts were the greatest by \$16,332.27, showing an increase of cash balance amounting to \$11,045.12 for the two months.

Troy & Greenfield.—In the suit of this company to redeem its road and the Hoosac Tunnel on payment of \$2,000,000, the State of Massachusetts has filed a demurrer, setting forth that the commonwealth is not subject to the jurisdiction of the Court; that the provisions of the general statute relating to mortgages are not applicable, and that the company has not complied with the provisions of its charter, and therefore cannot enforce any claim against the state. The case will be heard at the next term of the Court.

Virginia & Truckee.—Work is soon to be begun on the branch of this road from Mound House, Nev., to the Bodie Mining district in California. Contracts for the ties and rails have been let, and many of the ties are cut and ready for delivery.

Washington, Cincinnati & St. Louis.—Work has been begun on a section of 10 miles of this road, from Georgetown, D. C., to Falls Church, Va. Contracts have been let for the grading and the ties.

Waxahachie Tap.—A contract to build this road has been let to J. B. Riordan & Co., who agree to do the work for the stock subscriptions and town bonds, amounting to about \$45,000. The road is to run from Ennis on the Houston & Texas Central to Waxahachie, the county seat of Ellis County, Texas, a distance of 12 miles. The contractor expects to buy partly-worn rails from the Central road.

Western Union Telegraph.—At the regular meeting of the board, March 12, the following statement was presented for the quarter ending March 31:

Surplus, Jan. 1.....	\$298,776.41
Net earnings for quarter, partly estimated.....	920,983.49
Total.....	\$1,219,759.90
Interest, sinking fund and construction.....	167,306.81

Surplus..... \$1,052,453.09
On this it was resolved to pay the usual quarterly dividend, which will leave a surplus of \$526,517.00.

Whitefield & Jefferson.—This road, built some two years ago by the Brown Lumber Company as a logging road, has been improved and put in order and equipped for passenger traffic, and will be opened June 1, in time for the summer pleasure travel. It is 10 miles long, from the Boston, Concord & Montreal at Whitefield, N. H., eastward to Jefferson in the northern part of the White Mountain region. It is proposed to extend it some 12 miles further, to Gorham on the Grand Trunk road.

ANNUAL REPORTS.

Central, of Iowa.

This road consists of a line from Albion, Ia., north to Northwood, 189 miles, and the Muchachinock Branch, 1.5 miles, which is used as a part of the main line. The road is in the hands of H. L. Morrill, Receiver, pending suits for foreclosure, which are now before the United States Supreme Court on appeal from the Circuit Court. Mr. Morrill has been Receiver from April 30, 1878, when he was appointed to succeed J. B. Grinnell; he reports to the Court for the year ending Dec. 31, 1878.

The equipment consists of 24 locomotives; 9 passenger and 7 baggage and mail cars; 316 box, 30 stock, 270 coal and 14 way cars; 3 service cars, 1 snow-plow, 46 hand and 39 push cars.

The mileage of locomotives and cars was as follows:				
	1878.	1877.	Inc. or Dec.	P. c.
Locomotives.....	240,937	232,679	I. 8,278	3.6
Passenger.....	305,423	I. 2,463	0.8	
Freight.....	63,150	56,088	I. 9,071	14.2
Service.....	73,950	83,903	D. 9,953	11.9
Switching.....	685,952	676,093	I. 9,859	1.5
Total.....				
Cars:				
Passenger-train.....	732,284	714,984	I. 17,300	2.4
Freight.....	4,409,064	4,384,283	I. 24,781	0.6
Service.....	885,149	785,652	I. 99,497	12.7

Of the freight-car mileage 2,183,055 was of foreign cars,

and Central cars made 2,686,713 miles on foreign roads. The average freight train was 9 loaded and 7 empty cars, 16 in all. Locomotive service cost 18.88 cents per mile.

The traffic carried was as follows:

Passengers carried.....	175,547
Passenger mileage (\$2.97 per train mile).....	5,534,677
Tons freight carried.....	274,721
Tonnage mileage (73.97 per train mile).....	23,543,763
Average rate per passenger per mile.....	3.29 cts.
ton.....	2.27 "

Coal furnished 39 per cent. of the tons carried and 67 per cent. of the tonnage mileage. The rate upon it was much lower than on other freight, however, averaging 1.19 cents per ton per mile. Grain and flour carried were 81,861 tons; lumber, 28,410 tons, and stock, 16,400 tons. The statement does not include 43,572 tons fuel and other freight for the use of the road.

The earnings for the year were as follows:

	1878.	1877.	Inc. or Dec.	P. c.
Passengers.....	\$182,016.28	\$179,348.88	I.	2,667.40 1.3
Freight.....	535,040.91	\$520,242.26	I.	14,798.65 2.8
Mails, express, etc.	38,601.30	32,950.95	I.	5,650.35 17.1
Total.....	\$755,658.49	\$732,542.09	I.	\$23,116.40 3.1
Working exps.....	429,634.57	433,581.77	D.	3,947.20 0.9
Renewals.....	145,942.43	80,381.78	I.	65,560.65 81.3
Total.....	\$575,577.00	\$513,963.55	I.	\$62,613.45 12.3
Net earnings.....	\$180,081.49	\$209,578.54	D.	\$29,497.05 14.1
Gross earnings per mile.....	3,906.71	3,847.99	I.	118.72 3.1
Net earn. per mile.....	945.31	1,100.15	D.	154.84 14.1
Per cent. working expenses.....	56.85	59.19	D.	2.34 4.0
Per cent. all exps.....	76.16	71.39	I.	4.77 6.7

Earnings were diminished by a short wheat crop and by competition in the coal business, resulting in lower rates. Working expenses show a decrease, but renewals a large increase, due to the fact that the road has really been neglected, renewals having been less than the wear, so that additional expense is now needed to put it in condition. Local passenger business suffered from the completion of the Rock Island branch to Oskaloosa, while through travel increased.

Renewals included 721 tons steel and 599 tons iron rails; 10,074 feet pile and trestle and 290 feet truss bridge, besides repairs to other bridges; 23 miles new fence; 28 miles of track ballasted with gravel and three new water stations. There were 9,274 feet new sidings built. Two engines and 50 coal cars were bought and 14 coal cars built.

The round-house at Marshalltown was finished and work begun for the completion of the shops there. A large amount was spent in repairing and rebuilding cars and engines. There are now 22.2 miles laid with steel; 73.5 miles are ballasted and 69.5 miles fenced. Maximum grades are 68 feet to the mile.

The Receiver's balance sheet is as follows:

Received, May 1, cash and materials from former Receiver.....	\$115,779.76
Collections on account former Receivers.....	20,307.37
Marshall shops tax.....	3,063.55
Earnings, eight months.....	513,817.41
Accounts payable.....	42,801.08
Total.....	\$806,399.77
Expenses, eight months.....	\$442,435.40
Marshall shops.....	1,363.13
Paid on account of former Receivers.....	70,564.12
Balances due.....	52,593.83
Materials.....	32,303.20
Cash.....	97,240.00
Total.....	\$606,399.77

Very full tables accompany the report, showing the operations of the road in detail and all the expenditures by the Receiver for the care and improvement of the property.

Montpelier & Wells River.

This company, which owns a line from Wells River, Vt., to Montpelier, 38 miles, furnishes the following statement for the year 1878:

	1878.	1877.	Inc. or Dec.	P. c.
Freight.....	\$44,387.62	\$45,781.19	D.	\$1,393.57 3.0
Passengers.....	22,531.21	25,277.40	D.	2,746.28 10.9
Express, mail, etc.....	6,593.08	6,004.76	I.	488.32 8.2
Total.....	\$73,511.91	\$77,063.44	D.	\$3,551.53 4.7
Expenses.....	53,650.38	49,480.18	I.	4,161.20 8.4
Net earnings.....	\$19,861.53	\$27,063.26	D.	\$7,201.73 28.2
Gross earn. per mile.....	1,934.53	2,030.30	D.	95.83 4.7
Net earn. per mile.....	522.67	728.01	D.	205.34 28.2
Per cent. of exps.....	72.90	64.11	I.	8.88 13.9

During the year passenger trains ran 50,945 miles; freight and mixed, 24,671; gravel and wood, 6,064; total, 81,680 train-miles. There were carried 16,504 local and 6,007 through passengers, a total of 22,511 passengers, who were carried 502,968 miles. The local fares are five cents per mile; the average receipt per passenger per mile was 4.47 cents.

Hannibal & St. Joseph.

This company owns the following lines:

	Miles.
Main Line, Hannibal, Mo., to St. Joseph.....	216.41
Atchison Extension, St. Joseph to Atchison, Kan.....	19.47
Kansas City & Cameron Branch, Cameron, Mo., to Kansas City.....	53.05
Quincy Branch, Palmyra, Mo., to West Quincy.....	13.42
Total.....	292.35

The report is for the year ending Dec. 31, 1878.

The equipment consists of 72 engines; 30 passenger and 16 baggage and mail cars; 528 box, 520 combination, 89 stock, 176 flat, 306 coal and 31 way cars; 1 directors', 1 paymaster's, 1 derrick and 1 pile-driver car; 58 hand and 61 rubber cars.

The capital and general accounts are given separately. The capital account is as follows:

Common stock.....	\$9,168,700.00
Preferred stock.....	5,083,034.00
Total stock (\$48,807 per mile).....	\$14,251,734.00
Bonds (\$29,110 per mile).....	8,700,000.00
Total (\$77,917 per mile).....	\$22,951,734.00
Road and property (\$45,805 per mile).....	\$13,382,427.45
Discount, depreciation, etc.....	6,497,630.80
Balance to general account.....	3,081,656.00
Total.....	\$22,951,734.00

The large amount of discount and depreciation is due to the careful revaluation of the property made last year by the present management. The bonded debt given consists of \$3,000,000 Missouri state bonds, 8 per cents; \$4,000,000 convertible 8 per cents; \$1,200,000 Kansas City & Cameron 10 per cents, and \$500,000 Quincy & Palmyra 8 per cents, the annual interest being \$660,000. This statement does not include \$898,000 land-grant bonds, which are a charge only on the land revenue and carried on the Land Department balance sheet; \$419,000 of these bonds are held by the company.

The general balance sheet (condensed) is as follows:

Balance from capital account.....	\$3,061,656.69
Balance from revenue account.....	120,355.53
Interest on land-grant bonds held.....	24,496.33
Accounts and balances payable.....	312,613.54
Unpaid coupons, January interest, etc.....	154,483.50
Profit and loss.....	6,617.53
Total.....	\$3,680,223.12
Cash, materials and receivables.....	\$393,522.82
Improvements, elevators, etc.....	157,061.41
Bonds and property.....	437,800.00
Land Department balance.....	2,555,341.95
Suspended and doubtful accounts.....	106,496.94
Total.....	\$3,680,223.12

The traffic for the year was as follows, the cost per train mile and per car mile given not including general expenses or maintenance of way, but only train expenses:

	1878.	1877.	Inc. or Dec.	P. c.
Train mileage.....	1,354,767	1,295,486	I.	59,281 4.6
Car mileage.....	16,968,762	15,519,601	I.	1,449,161 9.3
Per train mile.....	151.00 cts.	149.00 cts.	I.	2.00 cts. 1.3
Receipt.....	46.27 "	50.38 "	D.	4.11 "
Cost.....	12.05 "	12.44 "	D.	0.39 "
Cost.....	3.64 "	4.20 "	D.	0.56 "
Passengers carried.....	257,916	253,384	I.	4,532 1.8
Passenger mileage.....	19,108,076	15,550,644	I.	3,557,432 22.1
Tons freight carried.....	543,472	469,875	I.	73,597 15.6
Tonnage mileage.....	100,012,716	80,744,682	I.	19,268,034 23.8
Average rate:				
Per passenger per mile.....	2.87 cts.			
Per ton per mile.....	1.13 "			

About 84.5 per cent. of the tonnage mileage was of through freight; 53.3 per cent. of all the tonnage mileage was of east-bound, and 46.7 per cent. of west-bound freight, a more even division than on most western roads.

The earnings for the year were as follows:

	1878.	1877.	Inc. or Dec.	P. c.
Passengers.....	\$556,886.88	\$524,400.79	I.	\$32,486.09 6.2
Freight.....	1,313,482.43	1,210,648.05	I.	102,834.38 8.5
Mail and express.....	75,777.31	85,028.57	D.	9,251.26 10.9
Miscellaneous.....	66,303.61	111,287.91	D.	44,984.30 40.8
Total.....	\$2,045,450.23	\$1,931,365.32	I.	\$114,084.91 5.9
Expenses.....	1,236,551.24	1,135,886.46	I.	90,664.78 8.0
Net earnings.....	\$818,898.99	\$795,478.86	I.	\$23,420.13 2.9
Gross earn. p. mile.....	6,906.35	6,906.35	I.	390.25 5.9
Net earn. p. mile.....	2,801.09	2,720.98	I.	80.11 2.9
Per cent. of exps.....	59.06	58.81	I.	1.15 2.0

The result of the year's business was as follows:

Net earnings.....	\$818,898.99
Interest, exchange and taxes.....	\$38,543.46
Coupon interest.....	660,000.00
Total.....	\$818,898.99

Balance, surplus.....\$120,355.53

The passenger earnings did not increase with the traffic on account of the enforcement on competing lines of the limit of three cents per mile on passenger fares. The average freight rate was reduced by the temporary suspension of the Southwestern Association pool.

The total receipts of the Land Department for new sales and on contracts were \$238,659.41; expenses, \$36,639.49; interest on land-grant bonds, \$50,289.87; transferred to trust fund, \$150,000, leaving a balance of \$1,730.05.

Renewals included 4,224 tons of steel rails and 111,562 ties; 128.9 miles of track are now laid with steel. During the year 1,200 feet Howe truss and 9,095 feet pile or trestle bridges were renewed. Several water stations were built. The Kansas City yard has been remodeled, a new engine-house and shop built, and the freight house enlarged. Six Mogul freight engines and 250 box cars were bought.

The finances of the company have been put in sound condition by much effort. Its policy is now to retire the temporary land-grant bonds as fast as possible, and to apply the land assets to meet the Missouri state bonds as they fall due.

Housatonic.

This company owns a line from Bridgeport, Conn., north to State Line, 74 miles; it leases the Berkshire road, 22 miles, from State Line to West Stockbridge, Mass.; the Stockbridge & Pittsfield road, 29 miles; the West Stockbridge road, from West Stockbridge, Mass., to State Line, N. Y., 2.75 miles, and the New York, Housatonic & Northern road, from Brookfield, Conn., to Danbury, 5.50 miles, making 126.25 miles worked, and forming a line from Bridgeport to Pittsfield, with branches to Danbury and to the New York State line. The report is for the year ending Sept. 30, 1878.

The equipment consists of 19 engines; 22 passenger, 4 smoking and mail and 6 baggage cars; 191 box, 228 flat, 1 stone, 14 hay and 2 caboose cars; 1 crane and one wrecking car.

The general account is as follows:

Common stock.....	\$820,000.00
Preferred stock.....	1,180,000.00
Total stock (\$27,027 per mile).....	\$2,000,000.00
Bonds (\$7,432 per mile).....	550,000.00
Accounts, balances, September expenses.....	181,347.46
Profit and loss.....	154,256.50
Total.....	\$2,885,603.96
Road and property (\$37,475 per mile).....	\$2,773,145.96
Stockbridge & Pittsfield Co.....	5,962.70
Cash, materials and receivables.....	106,495.24
Total.....	\$2,885,603.96

The bonded debt consists of three issues: \$150,000 due in 1883, \$100,000 in 1885, and \$300,000 in 1889. It is very light in amount.

The earnings were as follows:

	1877-78.	1876-77.	Inc. or Dec.	P. c.
Passengers.....	\$175,017.62	\$168,405.98	I.	\$6,611.64 3.9
Freight and milk.....	370,421.17	396,541.79	D.	26,120.62 6.6
Mail, express, etc.....	24,974.09	24,459.39	I.	515.30 2.1
Total.....	\$570,412.88	\$589,407.16	D.	\$18,994.28 3.2
Expenses.....	\$370,472.36	\$354,436.72	D.	\$16,035.64 4.1
Net earnings.....	\$219,941.12	\$234,970.44	D.	\$15,029.32 6.4
Gross earnings, per mile.....	4,527.09	4,677.83	D.	150.74 3.2
Net earnings per mile.....	1,745.56	1,864.84	D.	119.28 6.4
Per cent. of exps.....	61.44	60.14	I.	1.30 2.2

The income account was as follows:

Net earnings, as above.....	\$219,941.12
State and other taxes.....	\$10,472.83
Rentals.....	79,282.97
Interest on bonds and loans.....	47,559.48
Total.....	\$357,256.40
Surplus for the year.....	\$82,825.84
Balance of profit and loss, Sept. 30, 1877.....	166,030.66
Total.....	\$248,856.50
Dividends on preferred stock, 8 per cent.....	94,400.00
Balance, Sept. 30, 1878.....	\$154,456.50

Showing a reduction of \$11,774.16 during the year. With

an increase in passenger earnings, there was a considerable loss in freight, which was not made up by the decrease in expenses. There was also a small increase in the interest paid.

Eastern.

This company owns a line from Boston to State Line, 41.39 miles, which is extended from State Line to Portsmouth, 15.90 miles, by the leased Eastern Railroad in New Hampshire, and to Portland, 51 miles, by the leased Portland, Saco & Portsmouth road, making a main line 108.29 miles long from Boston to Portland. It leases the Portsmouth, Great Falls & Conway road, from Conway Junction to North Conway, N. H., 71.37 miles. It owns in Massachusetts 11 branches, 76.566 miles in all, and it leases three others, 25.71 miles in all, making a total of 281.966 miles worked, of which 117.986 miles are owned and 163.98 leased. There are 39.196 miles of second track, and 66.0425 miles sidings, making a total equivalent to 397.4045 miles single track, of which 123.551 miles are laid with steel. The 44th annual report covers the year ending Sept. 30, 1878.

The road is equipped with 97 engines; 136 passenger and 87 mail and baggage cars, 1,349 freight cars. Of these 22 engines, 2 baggage and 230 freight cars are leased.

The balance sheet (condensed) is as follows:

Stock (\$42.353 per mile).....	\$4,997,000.00
Funded debt (\$115.144 per mile).....	13,587,021.99
Notes payable.....	1,008,541.22
Current accounts, accrued interest, etc.....	479,807.51
Total.....	\$20,072,970.72
Road and equipment (\$96.092 per mile).....	\$7,905,000.00
Investments, stocks and real estate.....	1,493,810.00
Cash and cash assets.....	447,547.68
Profit and loss.....	10,226,613.04
Total.....	\$20,072,970.72

The present value of property and investments has been arrived at by a rigorous scaling down from their original cost. The debt consists of \$13,165,619.46 certificates of indebtedness issued under composition in bankruptcy; claims, bonds and notes, amounting to \$227,002.53, still to be exchanged for such certificates; \$194,400 Essex Railroad bonds, and \$1,008,541.22 notes, nearly all secured by mortgage or other collateral. The annual interest on all is \$547,318.93. There was an increase of \$110,244.45 in the funded debt during the year, but a decrease of \$22,273.81 in floating debts. Nearly all the litigation arising from the settlement in bankruptcy has been finished by decisions generally favorable to the company, and nearly all the creditors have accepted the final settlement and taken certificates of indebtedness as provided. General confidence is now felt in these certificates, and it is believed that the road can earn the interest.

The earnings for the year were as follows:

	1877-78.	1876-77.	Inc. or Dec.	P. c.
Passengers.....	\$1,378,747.36	\$1,384,117.15	D.	\$5,369.78 0.4
Freight.....	911,065.99	909,852.20	D.	57,836.81 6.0
Express, mail, etc.....	106,576.18	97,264.92	I.	9,311.26 9.6
Miscellaneous.....	55,615.82	56,873.24	D.	1,257.42 2.2
Total.....	\$2,452,035.35	\$2,508,107.51	D.	\$55,172.16 2.2
Expenses.....	1,581,125.47	1,708,700.20	D.	127,574.73 7.5
Net earnings.....	\$871,809.88	\$799,317.31	I.	\$72,492.57 9.1
Gross earn. per mile.....	8,638.35	8,895.07	D.	106.72 2.2
Net earn. per mile.....	3,091.52	2,834.80	I.	256.72 9.1
Per ct. of exps.....	64.46	68.13	D.	3.67 5.4

The net result of the year was as follows:

Net earnings, as above.....	\$871,809.88
Rentals of leased roads and tracks.....	\$242,017.37
Interest for the year.....	547,318.93
Total.....	780,334.30

Surplus to profit and loss.....\$82,475.58

The profit and loss account, in a condensed form, was as follows:

Net surplus for year, as above.....	\$82,475.58
Insurance on cars burned.....	16,600.00
Corrections, etc., old accounts.....	30,227.04
Total.....	\$135,602.62
Payments, charges, etc., old accounts.....	\$40,513.26
Loss on cars burned.....	16,900.00
Debit balance, Sept. 30, 1877.....	10,298,802.40
Total.....	10,362,215.66

Debit balance, Sept. 30, 1878.....\$10,226,613.04

This enormous debit balance represents the loss resulting from the extravagance and bad investments of the former management of the road.

The work done was as follows:

Train mileage:	1877-78.	1876-77.	Inc. or Dec.	P. c.
Passenger.....	1,033,892	1,089,833	D.	55,941 5.1
Freight.....	523,903	558,671	D.	34,768 6.5
Service and switching.....	519,356	.....	.....	.....
Total.....	2,077,131	.....	.....	.....
Cost of motive power per mile.	19.00 cts.	.....	.....	.....
Passengers carried.....	4,197,991	4,978,255	D.	780,264 15.7
Passenger mileage.....	61,706,081	68,502,092	D.	6,795,321 9.9
Tons freight carried.....	697,987	704,810	D.	6,823 1.0
Tonnage mileage.....	39,116,073	39,099,659	I.	16,414 0.4
Av. train load:	.....	.....	.....	.....
Passengers, No....	59.68	62.86	D.	3.18 5.1
Freight, tons.....	74.06	69.90	I.	4.67 6.1